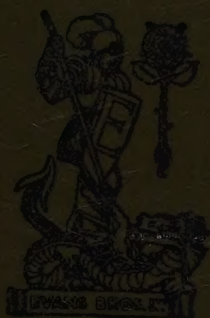


THE WOODWORKER

1930 VOLUME

NUMBER XXXIV



LONDON

EVANS BROTHERS LIMITED

MONTAGUE HOUSE RUSSELL SQUARE W.C.1

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THE WOODWORKER, 1930

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NOTE.—Letters (Q.B.) after a reference indicate that the item appears on "Question Box" page.

For the benefit of Readers who do not bind the Volume the paging of the twelve monthly numbers is here given to facilitate reference

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THE WOODWORKER

VOLUME XXXIV.

JANUARY, 1930.

NO. 434

BUILT-IN FURNITURE

I.—THE BEDROOM

ANY reader who has taken over a house or who is thinking of doing so will do well to consider the advantages of building his furniture into the rooms rather than making loose pieces to stand in them in the ordinary way. Naturally, one would not go in for this type of furnishing unless it was intended to buy the house, because fittings permanently fixed automatically become the landlord's property. Assuming the reader to own his house, however, there are definite advantages in the built-in idea.

ADVANTAGES.—First, and this will appeal to all, is economy. Only the barest skeleton framework is necessary for the interior. Backs can generally be omitted entirely, and in many cases sides also can be done away with, as the walls of the room virtually become these parts. This not only eliminates the cost of such portions, but saves the time that would have to be spent in their preparation.

A second point is that it makes the best economical use of the space in a room, giving the utmost accommodation. Take, for instance, the usual recesses formed by the chimney breast. If ordinary furniture is used there is bound to be a certain amount of space wasted at each side, because it is not desirable to make a piece

fit too closely in to the walls at the sides. In any case, even if it were a tight fit, it would not look well as only the front would show to advantage.

Another desirable feature is that the articles can be designed to suit the architectural features

of the room. They can be given a certain harmonious balance often unattainable in loose furniture. Yet they are in no sense mere fittings. They can be given all the characteristic, homely features one associates with furniture, yet preserve a sense of "oneness" with the room itself.

A fourth advantage is that of labour saving. Only when spring-cleaning comes round with

its pulling out of heavy articles of furniture is it realised how dust and dirt accumulate. When the things are built in they are scribed closely to the walls and floor, making it impossible for dust to work through. The ordinary sweeping is sufficient to keep the room clean.

It is obviously impossible to give exact sizes for the furniture we are to describe. Each reader must be guided by the dimensions and proportions of his rooms. Such points as the bearing of the lighting on the articles must be taken into consideration. For instance, the mirrors of a dressing table should be as near as

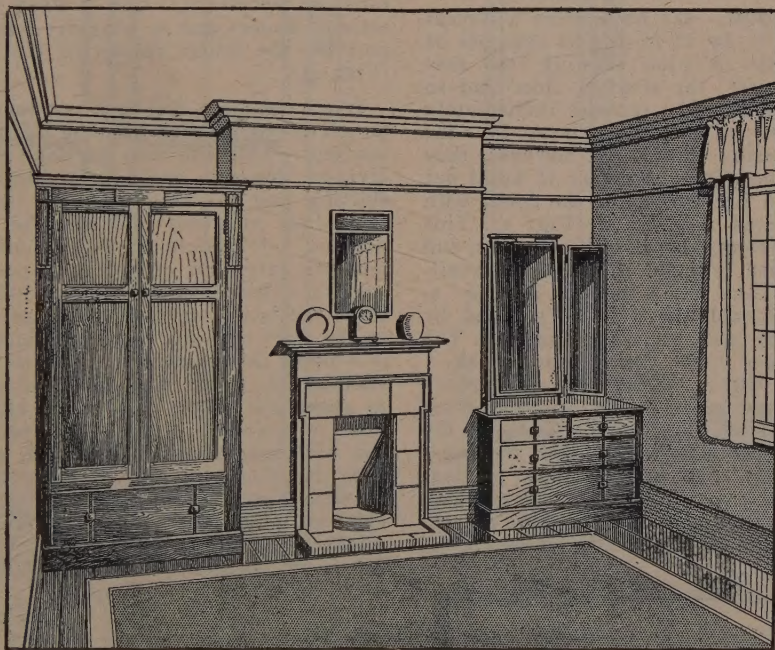


FIG. 1. SUGGESTED TREATMENT OF BEDROOM, WITH WARDROBE AND DRESSING CHEST BUILT IN THE RECESSES.

possible to the windows. Then there is the question of the depths available. It would be useless to make a chest of drawers to fit into a shallow recess and finish flush at the front. The drawers would have insufficient accommodation, and would work badly. The height of the picture rail is another consideration. Tall pieces usually look best when finishing just below the rail, although this cannot be taken as a rigid rule.

One important point always to be remembered is the provision of scribing pieces which will allow the article to break over features such as the skirting without any cutting-away of the structural parts. Such scribing pieces can usually take the form of pilasters as in the wardrobe described in the present article. A practical hint is to finish off the work as far as possible before erection. To stain and polish a job when in position would be sure to result in the walls being smeared. Only the final rubbers and touching up should be done afterwards.

A TYPICAL BEDROOM.—We have taken a typical small room of 16 ft. by 12 ft. for an example of bedroom treatment. A plan showing the fireplace and its recesses, the window, door and so on is given in Fig. 2. The recesses immediately suggest themselves as suitable places for the wardrobe and dressing chest. As, however, they are only 12 ins. deep it is necessary to build out the furniture. An illustration of the room with the furniture erected is given in Fig. 1. This shows clearly the forward break of both pieces, and shows how best use is made of the space available. Elevations and plans appear in Fig. 3. The sizes will probably have to be adopted by the reader to suit his own requirements. The designs are intended to be carried out in cask.

THE DRESSING CHEST.—The main framework of the dressing chest given in Fig. 4. The front posts are of 1 in. stuff 2 ins. wide. Those at the back are 1 in. square and line up with the *inner* edges of the front. This enables them to clear any projections such as the skirting. They stand forward from the back 1 in. for the same reason. The front right hand post, which is really a scribing

piece, is cut away at the bottom to fit over the skirting. These points are shown clearly in the plan in Fig. 6. It will be seen that both sides are exactly alike, except that a break piece is added to the left hand side to fill the space where the chest breaks forward. Note that the inner surface of this lines up with inner surface of the wall (see plan to right in Fig. 3).

Details of the joints used are given in Fig. 5. Prepare the front posts and fix the break piece to that to the left with either dowels or by a tongue and groove joint. The whole front can then be put together similarly to an ordinary chest. The top rail is dovetailed in and the remaining rails tenoned. Fig. 7 shows how the short upright separating the small top drawers is tenoned in. The runners are tenoned into the rails as in Fig. 5, and these joints should now be cut. The joints in the back posts can be taken direct from those in front. Only two back rails are necessary. One is fixed just above the second runners and so provides a convenient support for the centre runner of the small drawers (Fig. 4).

When the front has been put together it should be offered in position and the parts to be scribed marked. This can best be done with a pair of dividers, pressing one point against the wall and skirting and marking with the other. Add the remaining members and put the whole job in position. It should clear everywhere with the possible exception of the back posts which may require cutting away. If the skirting is extra thick the left hand back post can be fixed direct to the wall and not reach the floor at all. This is a point depending upon the particular circumstances. A slight adjustment may be necessary to make the whole job level, especially if the floor is uneven. Metal plates screwed on form the best method of fixing, with perhaps a nail here and there wherever convenient. The plinth is mitred at the corner and butts against the skirting. This is a possible exception where it might be better to fix after the remainder of the job is in position, especially if the floor is uneven, necessitating scribing. Even in this case the parts could be bodied up before fixing. The top is cut to fit closely in the space and is screwed on with screws driven upwards through the rails.

A part plan view of the mirrors is given in Fig. 3. The supports to which they are hinged are bound to be fairly wide to enable the centre mirror to be pivoted. These supports must rest upon the top so that the latter takes the main weight. Metal plates are, of course, necessary at the top, but these serve mostly to steady the posts rather than to take much weight. If desired, the side mirrors could be planned to fold back flat, but this rather restricts their width. The scheme in Fig. 3 where they are at a slight angle is probably preferable. A capping moulding is fixed to the top of the main mirror and a plain centre panel is glued to the top. The fretted moulding butts into this, is mitred at the

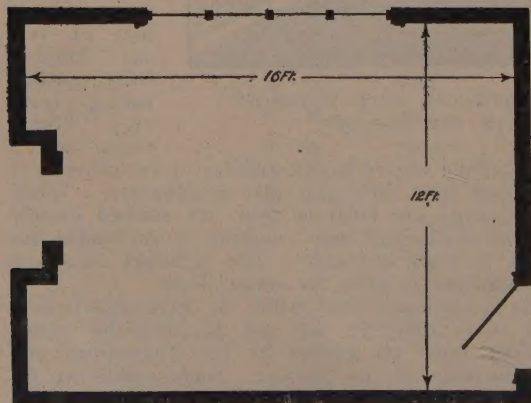


FIG. 2. PLAN OF TYPICAL SMALL BEDROOM SHOWING (AT LEFT) RECESSES AT SIDE OF FIREPLACE.

corners, and returns a short way down the stiles. The bottom rails of all mirrors are chamfered.

The drawers call for no special explanation. A groove is worked across the middle and a bead

moulding glued in. Wooden squares $\frac{1}{2}$ in. thick serve as back plates for the handles.

THE WARDROBE.—Fig. 8 gives the main framework of the wardrobe fitment. A large front

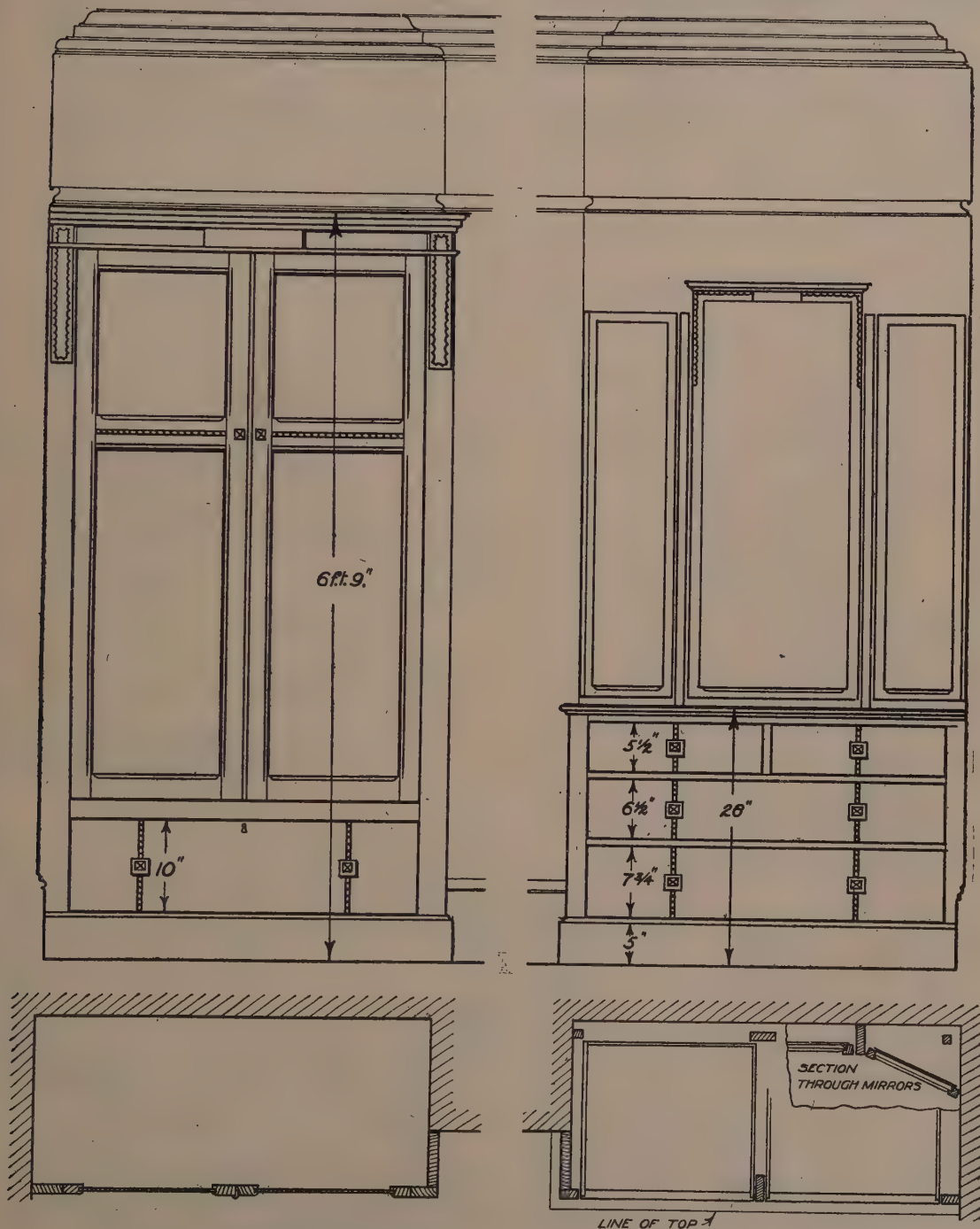


FIG. 3. ELEVATIONS AND PLANS OF THE TWO FITTED RECESSES.

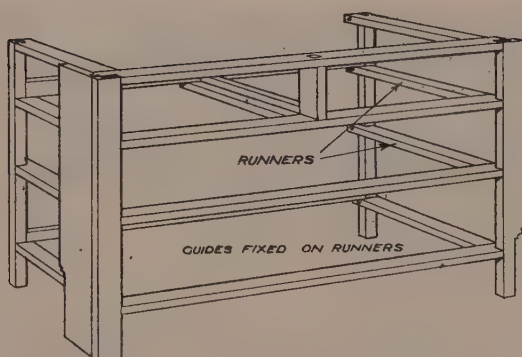


FIG. 4. MAIN FRAMEWORK OF CHEST.

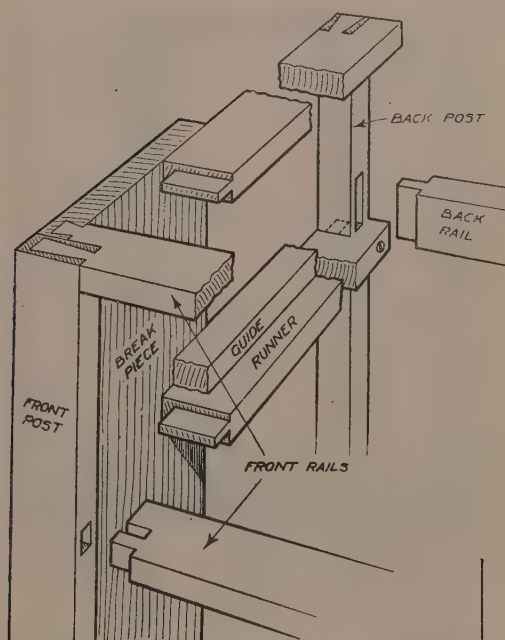


FIG. 5. CONSTRUCTION OF CHEST.

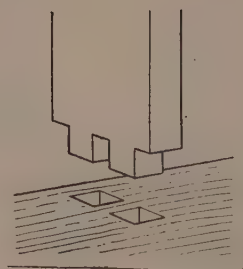


FIG. 7. DRAWER DIVISION JOINTS

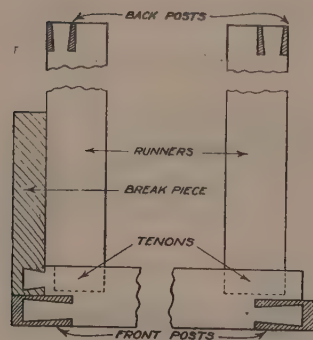


FIG. 6. PLAN OF CHEST JOINTS.

frame is put together with mortise and tenon joints, and a break piece fixed to the right hand side. The general observations given in connection

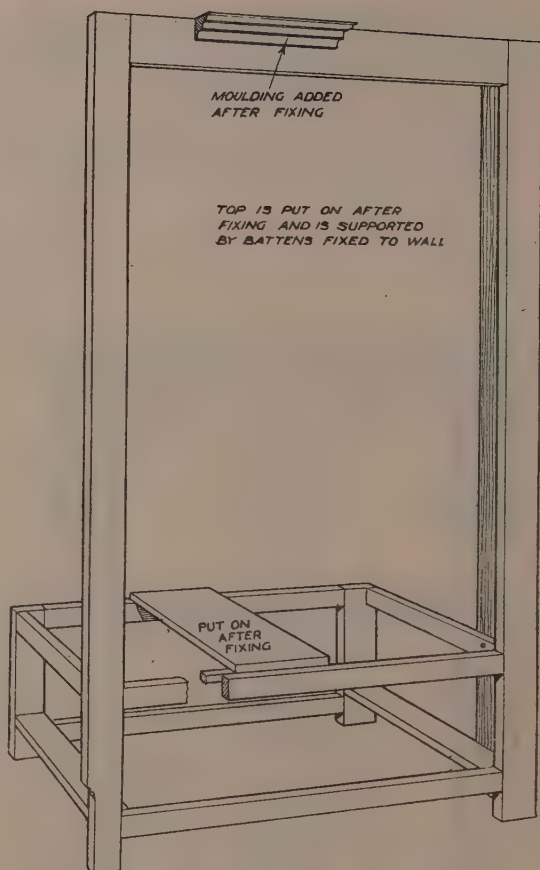


FIG. 8. FRAMEWORK OF WARDROBE.

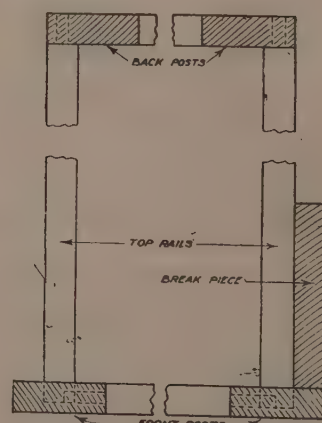


FIG. 9. PLAN OF WARDROBE JOINTS.

with the dressing chest apply in the present case. There is no need for the back part of the structure to run right up to the top. The top of the job and any shelves that may be required

can be fixed to battens fastened to the walls.

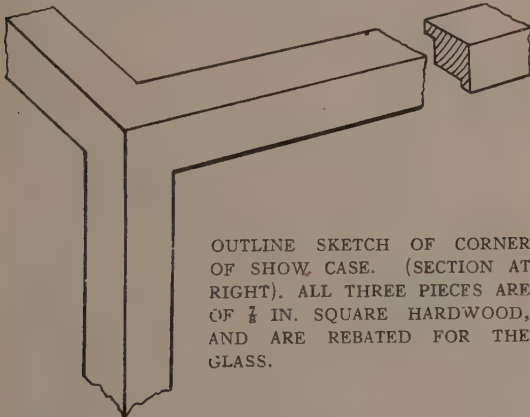
A plan is shown in Fig. 9, and a view of the joints in Fig. 10. Put the front frame together first and try it in position, scribing where necessary. The small back frame also can be assembled complete, and the side rails added after the glue has set. When fixing the whole in position be careful to make the top of the front frame firm as this has to take the weight of the large doors. It is in a great measure steadied by the top which is nailed to the battens spiked to the walls. It can be screwed at the front since the cornice moulding will hide the screw heads. A plain centre panel is added to the top rail between the cornice and frieze mould. The fretted moulding is mitred in the form of long oblongs down the pilasters.

Plain frames mortised together and with grooves for the panels are made up for the doors. The top front edges of the rails are chamfered and the lower edges worked with a bead mould. In addition the centre rail is grooved to take the decorative bead mould. It is advisable to scratch the bead moulding on the stiles, allowing it to run out opposite the joints. The drawer front is treated similarly to those of the chest. Square erinoid handles look very well.

(135)

Craft Problem Competition

THE outline sketch shows the corner of a show case. All three pieces are of hardwood $\frac{1}{4}$ in. square, and each piece is rebated to take the glass. How would you joint the three pieces to form a strong and neat corner?



OUTLINE SKETCH OF CORNER OF SHOW CASE. (SECTION AT RIGHT). ALL THREE PIECES ARE OF $\frac{1}{4}$ IN. SQUARE HARDWOOD, AND ARE REBATED FOR THE GLASS.

THREE PRIZES, each of HALF A GUINEA, will be awarded to the senders of the three best sketches showing the correct joint. Sketches may be in pencil, but should (preferably) be full size. The decision of the Editor will be final, and no correspondence can be entered into with competitors.

Sketches must be received not later than Tuesday morning, January 7th, and should be addressed to the Editor, THE WOODWORKER, Montague House, Russell Square, London, W.C.1.

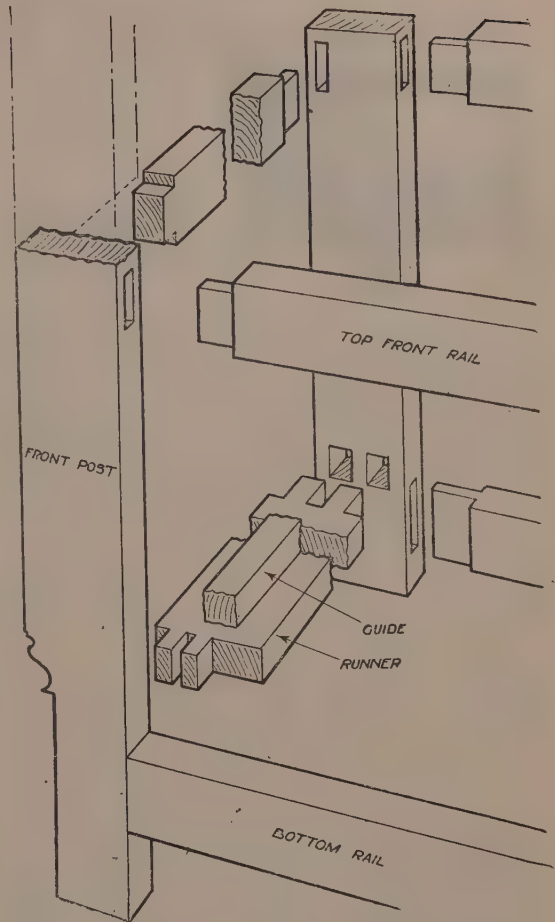


FIG. 10. DETAIL OF WARDROBE CONSTRUCTION.

The 1929 Woodworker Volume

THE 1929 WOODWORKER Volume contains designs (with full directions and cutting lists) for two complete bedroom suites, also for a living room or dining room suite. There is an exhaustive series of twelve articles on everyday joints, and another series on practical veneering. The general designs cover items of living room, drawing room, library, hall, bed room, kitchen and scullery furniture, and among the features are many articles on outdoor woodwork and garden furniture. The instructive articles include craft problems, tool manipulation, staining and polishing, household repairs, Handicraft Centre notes, timber notes, etc. The volume, of nearly 400 pages, is now ready, strongly bound in dark green cloth and with complete index, price 6s. 6d. net. Evans Brothers Ltd., Montague House, Russell Square, London, W.C.1.

DO NOT FAIL to place an order with your news-agent for the February number.

CHIPS FROM THE CHISEL



DURING December, in spite of rain and crowds, I always like to make a round of the more interesting thoroughfares and stores. Of course everyone does this, because it is just before Christmas that one sees the

many little odds and ends of things that other people might possibly like to possess. It is chiefly in the furniture windows, however, that I concentrate: not so much to admire well designed and soundly made suites, but rather to note what, in the way of individual items, the tradesman seems to feel that the public may want. And one thing that I have been watching for some time is the development of the fireside chair. There is nothing new about the fireside chair itself. It has been used for centuries; but within the last year or two it has been forcing itself into a prominence that seems to call for some notice.

* * * *

As in everything else, questions utilitarian and economic have been bearing on the chair—that is, on the comfortable easy (or, as it is nowadays called the fireside) arm-chair. Chesterfield suites and large and small upholstered easy chairs are still in demand, but for restricted accommodation and slender purses these are on the bulky side. It is, too, a recognised fact that upholstered suites wear out far more quickly in a small room than in a large lounge. During the war the pressure of economy brought the adjustable arm-chair to the front, and thousands of such chairs must have been made by readers from designs given in *THE WOODWORKER*. Over a period of ten years probably no design was in more frequent demand. Why this inexpensive and easily constructed lounge chair begins to wane in popularity is perfectly clear. For the small living room something more compact is wanted: hence the modern “fireside” chair.

* * * *

If I were asked to define the present-day fireside chair, I might say that it is one which, in the smallest space, will afford the maximum of comfort and ease to the man who wishes to sit for an evening reading, smoking, or talking. It is not, remember (like an upholstered easy chair), intended for having a nap in: the back, as a rule, is too low for this added luxury. But, free of all padding, with its low seat, flat arms and upholstered back, it is a chair which will keep the average man content for several hours. And if this can be achieved by occupying no greater floor space than about 24 ins. by 22 ins., then we have something which even the smaller living room will accommodate. Of such chairs there are to-day a great variety on the market, made in oak, walnut and mahogany. Many are of the

French *bergère* pattern. Some have caned backs, some also caned ends, whilst others have shaped back rails, arms and underframe rails. The upholstery, too, varies, many having loose seats and back cushions. Strictly speaking, a number of the better class chairs of this type come under the category of “occasional,” but of the regular fireside chair there are many well worth notice.

* * * *

I have in mind a light, inexpensive and easily made type of arm chair such as I show here—a fairly common design which varies in detail. The sizes might be suggested approximately as follows:—Width at front over legs, 21½ ins. or 22 ins.; width at back, 16½ ins. or 17 ins.; depth, back to front over legs, 20½ ins. or 21 ins.; height to top of arms, 22 ins.; height of back, over all, 29 ins. or 30 ins.; height to underside of seat rail, 4½ ins. The front legs might be 1½ in. square (stop-chamfered as shown if desired). The back legs could be 1½ in. thick (at stoutest part) by 1½ in. on face. The arms, slightly shaped, could be ¾ in. thick, 2 ins. wide at front, tapering to 1½ in. at back. The back rails are slightly bowed for extra comfort, and the rake of the back legs may be about 3 ins. The chair shown does not represent any particular design, but I mention these sizes as they approximate what will give considerable comfort with the minimum of floor space. The height to top of seat should not exceed 14½ ins.

* * * *

Then an article of bedroom furniture that is coming into its own again, though in modified form and under different names, is the tallboy. Here again utility has been shaping our ends. Gone from our bedrooms are the long legged dressing tables and marble-topped washstands, and in their place we have the more commodious dressing-chest and the tallboy. The tallboy entered modestly, aspiring to a height of 36 ins. or so, then creeping slowly up to 4 ft. or even 4 ft. 6 ins. In a design which we give on another page this month we have ventured to go a step further, and show a tallboy cabinet 5 ft. 9 ins. high. This, in my own judgment, is giving the article its due prominence and its proper place. The first suggested service of the modern tallboy was to provide a millinery cupboard in conjunction with a few useful drawers. Later, the cabinet portion was allowed a greater height so that, if desired, it might be used for hanging purposes. What, however, is in many cases wanted (especially for a spare room) is a modified type of wardrobe, narrow, but of imposing height, which will provide two or three drawers and, above, a cabinet which—as preferred—may be fitted either with shelves or with hook fittings for hanging purposes. In bedrooms where there is a recess at each side of the fireplace two such cabinets might be made: the one as shown; the other a regular wardrobe either with hanging space alone, or with only one drawer at the foot. Like the advent of the fireside chair, the re-appearance of the tallboy is an interesting phase in the development of modern design. (134)

TALLBOY CABINET

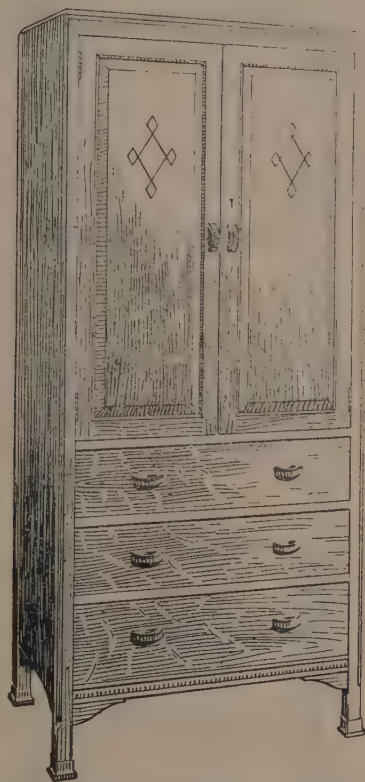


FIG. 1. GRACEFUL TYPE OF BEDROOM TALLBOY. HEIGHT, 5 FT. 9 INS. WIDTH, 2 FT. 6 INS.

THIS neat wardrobe cabinet would be very serviceable in a small bedroom, the over all sizes being: width, 2 ft. 6 ins.; depth, 1 ft. 6 ins. and height 5 ft. 9 ins. The design suggests the use of oak, Japanese oak being preferable, but there is no restriction to the timber. One of the Empire timbers might be used, such as teak, chuglan, kauri, silky oak or Queensland walnut. In using these more expensive woods, whitewood or other cheap wood might be used for the interior. To make the cabinet entirely in chestnut or whitewood, both of which finish well, would be quite inexpensive. However, oak of pretty grain and weathered, with ebony or ebonised hardwood handles (Fig. 3) is strongly recommended. An alternative finish would be to stain the cabinet dark (Johnson's wood dye), brush polish and then wax, allowing sufficient time between each application to dry thoroughly. A bright finish will not do. In this case use metal handles similar to those shown in Fig. 2.

CONSTRUCTION.—The four posts (A) are out of $1\frac{1}{2}$ in. squares, planed and papered to finish $1\frac{1}{8}$ in. square. All four are grooved to take the tongued ends, and the back posts are rebated

for the back panels (U). The front ones are stop bevelled, as in Fig. 2. The width of the ends (N) will be obtained by jointing two boards. When working the tongues, see that the ends are set in $\frac{1}{8}$ in. from the face of the posts (A), a levelling off will not then be necessary. Before glueing the ends and the posts together, trench ends $\frac{1}{4}$ in. deep across for the bottoms (K) and (L). Next prepare the top (O) and the bottom (K) and (L) by jointing boards as for the ends. The top should be in hardwood, but whitewood or deal will serve for the bottoms.

Next prepare the rails (B) and (H), marking off the shoulders from the drawer fronts, which should be cross cut to the finished size given in the list. The ends are then paired and the position of these rails marked across the posts, carrying the lines round for the mortises. All front rails are tenoned to the posts (A) and the rails must be grooved at the back for the dustboards and bottom. Before assembling the carcass work, bottoms (K) and (L) are tongued and glued to the rails (B) and (H) and notched round the posts (Fig. 6). When the carcass is up together, the top rails (M) can be dovetailed or screwed down to the ends and the drawer runners (J) screwed across. If dustboards are fitted these runners should be previously grooved to take them. The top (O) should be fixed by screwing up through rails (M) as, being about eye level, the screw heads may show if screwed from the top. Reference to Figs 2, 4 and 6 will make these constructional remarks clear.

THE DOOR FRAMES are prepared from 1 in. stuff, oak strips, and are rebated for the panels and bevelled off on the inner edges. Fig. 5 shows the method of putting together, the bevel being mitred at the corners. Alternatively, a mason's mitre might be used. The meeting stiles (D) are shown in Fig. 5. These stiles are $\frac{3}{4}$ in. wider to allow for the bead and rebate. The door panels (T) should be selected stuff of nice figure and may be left plain or bevelled as shown. Oak-faced plywood, 6 mm. thick, would be cheap and serviceable. To relieve the severity a lozenge motive might be cut in by incised V-lines or inlaid with $\frac{1}{8}$ in. black lines as shown in Fig. 1. Stain and polish the panels before beading in. Each door is hung on a pair of $2\frac{1}{2}$ in. brass butt hinges. A pair of small bolts is fitted behind the left hand door and a lock (cupboard), ball catch and knob or handle fitted to the right hand door, facing.

THE DRAWERS are assembled in the usual way, the sides being lap dovetailed to the fronts and through dovetailed to the backs. Allow a little on the width of the fronts and sides for fitting. The backs should stand down about $\frac{1}{4}$ in. at the top. The plywood bottoms, 4 mm. thickness, may be grooved into the front and sides or run in on slips, the former being less work.

THE BACK may be framed up, either in the panelled and muntined type as shown, or in one plywood board, say, 6 mm. thickness. The framed type is best but costly. The type

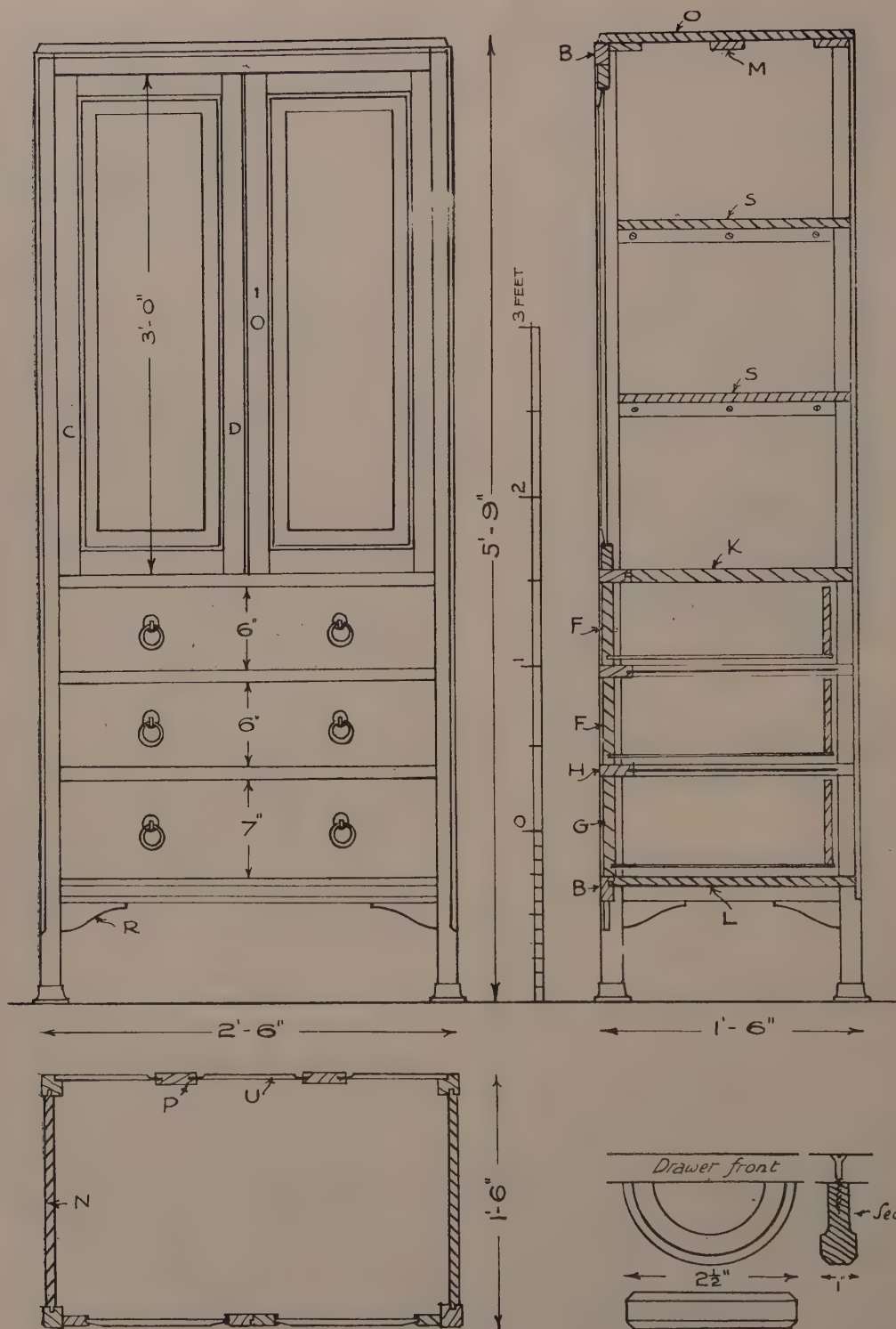


FIG. 2. SCALE ELEVATION SECTION AND PLAN.

FIG. 3. TYPE OF TURNED HANDLE.

shown would be better for this article. Groove the muntins (P) to take the fielded panels (U), and screw into the rebates in the posts and to the top rail (M) and the bottoms (K) and (L). The shoes at the base of the posts are dowelled on (see Fig. 4). Shaped brackets (R), which are stub-tenoned and glued to the posts, complete the job. Shelves are shown in the cupboard but these are optional, hooks for hanging being substituted if desired.

The cutting list is as follows:—

		Long. ft. ins.	Wide. ins.	Thick. ins.
A	4 Posts	5 7 $\frac{1}{2}$	1 $\frac{3}{8}$	1 $\frac{3}{8}$
	4 Toes	0 2	2	1 $\frac{1}{2}$
B	2 Front rails ...	2 5	1 $\frac{1}{4}$	1
C	2 Door stiles ...	3 0	2	7 $\frac{1}{8}$
D	2 Door stiles ...	3 0	2 $\frac{3}{8}$	7 $\frac{1}{8}$
E	4 Door rails ...	1 0	2	7 $\frac{1}{8}$
F	2 Drawer fronts...	2 3 $\frac{1}{4}$	6 $\frac{1}{2}$	7 $\frac{1}{8}$
G	1 Drawer front ...	2 3 $\frac{1}{4}$	7 $\frac{1}{8}$	7 $\frac{1}{8}$
H	3 Drawer rails ...	2 5	2 $\frac{1}{4}$	2 $\frac{1}{4}$
J	4 Runners	1 3 $\frac{1}{2}$	1 $\frac{1}{2}$	2 $\frac{1}{4}$
K	1 Cupboard bottom	2 5 $\frac{1}{2}$	15 $\frac{3}{8}$	2 $\frac{1}{4}$
L	1 Carcase bottom	2 5 $\frac{1}{2}$	17	2 $\frac{1}{4}$
M	3 Top rails	2 5 $\frac{1}{2}$	2 $\frac{1}{4}$	2 $\frac{1}{4}$
	6 Drawer guides	1 0	7 $\frac{1}{8}$	2 $\frac{1}{4}$
N	2 Ends	5 0 $\frac{1}{4}$	16	8 $\frac{1}{8}$
O	1 Top	2 5 $\frac{1}{2}$	17 $\frac{3}{4}$	8 $\frac{1}{8}$
P	2 Back muntins...	5 0 $\frac{1}{4}$	3	8 $\frac{1}{8}$
R	1 For 6 brackets	2 3	2	8 $\frac{1}{8}$
S	2 Shelves	2 4 $\frac{1}{2}$	16 $\frac{1}{2}$	7 $\frac{1}{8}$
T	2 Door panels ...	2 8 $\frac{3}{4}$	10 $\frac{1}{4}$	7 $\frac{1}{8}$
	4 Drawer sides...	1 3 $\frac{3}{4}$	6 $\frac{1}{2}$	7 $\frac{1}{8}$
	2 Drawer sides...	1 3 $\frac{3}{4}$	7 $\frac{1}{8}$	7 $\frac{1}{8}$
	2 Drawer backs...	2 3 $\frac{1}{4}$	5	7 $\frac{1}{8}$
	1 Drawer back...	2 3 $\frac{1}{4}$	6	7 $\frac{1}{8}$
U	3 Back panels ...	5 0 $\frac{1}{4}$	8 $\frac{1}{4}$	8 $\frac{1}{8}$
	4 Shelf bearers...	1 3 $\frac{1}{4}$	1	8 $\frac{1}{8}$
	3 Drawer bottoms	2 2 $\frac{1}{4}$	16	1 $\frac{1}{4}$

All sizes are net.

Brush Polish

IN far-away India a little insect feeding on certain trees of the acacia family basks in the sun, unconscious that he is important to the commerce of the distant West and useful in every amateur workshop and handicraft room. For, by one of the mysterious processes of Nature's alchemy, he secretes a substance which, when washed, filtered, and dried, becomes the familiar dark-brown flakes of orange shellac.

More than half of the shellac produced is bought by the makers of gramophone records; most of the rest makes our furniture shine through the medium of french polish or spirit-varnish. The latter is very simple to make and use, the shellac being merely dissolved in methylated spirit, and spread upon the surface with a brush; the spirit evaporates quickly and the shellac stays behind as a permanent polish.

There are one or two simple precautions which ensure economy and good work. The shellac is generally dissolved in three or four times its own bulk of spirit, and it should stand a few days

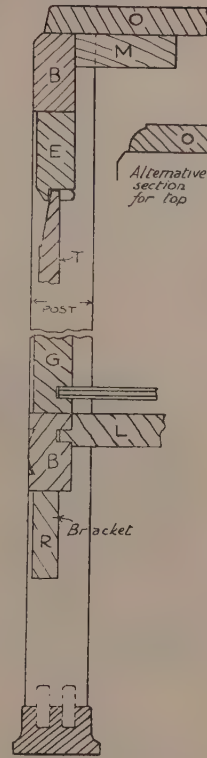


FIG. 4. SECTION.

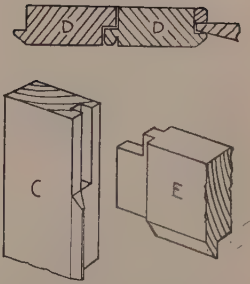


FIG. 5. DOOR DETAILS.

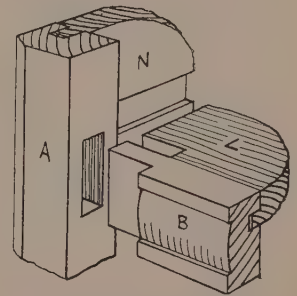


FIG. 6. METHOD OF FITTING BOTTOMS.

before use. Since the varnish evaporates quickly it is best kept in a covered vessel; the modern type of jam-jar with a push-on tin lid is admirable. Another necessity is a good soft brush, such as a camel-hair mop costing about 1/6; the brush should be kept suspended in the liquid so that it will keep soft and be ready for instant use. A good plan is to fit the brush-handle tightly into a hole in the lid; a hole can easily be cut in this thin metal by tapping a strong firmer gouge lightly through, using the end-grain of a soft-wood block as an anvil. Finally, when using the varnish, it should be remembered that a quick-drying solution is to be laid lightly on the surface (not rubbed in), and that several thin coats are always better than one thick one. (122)

"MODEL POWER BOATS" in a new book by Edward W. Hobbs, just published by Messrs. Cassell (6s. net). Mr. Hobbs' companion volume, "Model Sailing Boats," was noticed in these columns some time ago; and from our knowledge of the author's writings we can assure readers that here they may rely on something eminently practical. The volume is well produced and richly illustrated with clear line drawings and photographic reproductions. Published by Cassell and Co. Ltd., La Belle Sauvage, London; E.C.4.

HOME CARPENTRY

I.—ON THE INITIAL KIT AND THE MAKING OF A TOOL STOOL

HOME carpentry need not necessarily be expensive, for whatever be made is always an asset and the beginner can commence operations with a very modest equipment of household and bench tools. To this he may at a later date make additions as his fancy and spare cash permit, or at such a time as the particular work in hand may call for special tools. The old-fashioned tool chest with its rows of moulding and tongueing planes, etc., is a thing of the past because, owing to modern improvements in saw mill practice, the home worker is seldom called upon to do a lot of laborious and uninteresting manual work. This is of course all for the good in an age of hustle where time is money and the most has to be made of leisure hours.

Stripwood, battens, boards, leg squares, dowels and mouldings

(all of which are machine wrought) can easily and cheaply be purchased in every county town, and it is in the designing, the setting-out and the actual making of the article wherein the worker obtains his greatest satisfaction. The assembling of ready made factory cabinets or sideboards, etc., calls for little constructive ability except in regard to the staining and finishing; all the thinking has already been done. On the other hand, the craftsman who designs and makes up his own work has to consider fitness of purpose, sound construction and restrained ornamentation, and he thus nearly always obtains a finished product having distinctive features.

The Tool Kit.

The first important problem that confronts the beginner is what tools and what make of tools should he purchase. This to some extent will depend upon the amount of spare cash at his disposal. He will, however, get along fairly well in the initial stages of his work with the following tools which should bear the legible imprint

of some reputable British or American manufacture. A reliable make of plane, saw and chisel will last the home worker a lifetime.

Do not at this stage be persuaded to purchase what may be termed

'fancy tools,' such as elaborate moulding planes and circular metal spokeshaves. These tools should come along later when both you and your work really require them. Much useful work can be entirely completed with a saw, a chisel, a try square and a hammer.

A TOOL KIT FOR THE BEGINNER may include:—Beech jack plane, 2½ in. blade, double iron,

technical pattern with sunk handle; metal smoothing plane with 2½ in. blade of the Stanley or Millers Fall pattern; handsaw about 22 ins. long; tenon saw, 12 ins., with brass or steel back; panel or cross cut saw with 18 in. blade; India medium oilstone in case, size about 8 ins. by 2 ins.; one each ¼ in., ½ in. and ¾ in. bevelled edge firmer chisels with octagonal handles; one light socket bevelled edged chisel (Marples pattern No. 834); try

square, all metal, with 6 in. blade; beech marking gauge; rule; medium size spokeshave to work on a small radius; hammer; heavy type pincers; 2 gimlets and 2 bradawls for fine and medium holes; 2 screwdrivers, medium and small; brace, either fixed or ratchet action according to price expended; ¼ in. and ½ in. and 1 in. centre bits; 2 shell bits, one to bore holes for No. 10 gauge screws and one smaller; ¾ in. and 1 in. Jennings' pattern twist bits.

The above tools will give you quite a good start and later you may add to the kit such tools as an inch rebate plane, a small metal block plane, a bow saw or a coping saw, cabinet file and rasp for cleaning up shaped edges where it is impossible use a spokeshave. Twist boring bits and chisels may be added until you have a variety of sizes from ⅜ in. up to 1 inch, and a couple of paring gouges will also be found very handy for curved work and countersinking.

Having purchased your first lot of tools it is advisable to take the blade and wedge out of the beech jack plane and wipe all over the wooden portions with a rag which has been dipped into raw linseed oil. This treatment will not swell and distort the timber, but it will feed the wood quite satisfactorily and fill up the pores gradually if the plane is wiped over every day for about a month.

Making a Tool Stool.

TOOL STOOL.—Our next consideration is the housing of our tools, and here the writer ventures to strike new ground by suggesting a *tool stool*. For a household kit of tools this has many

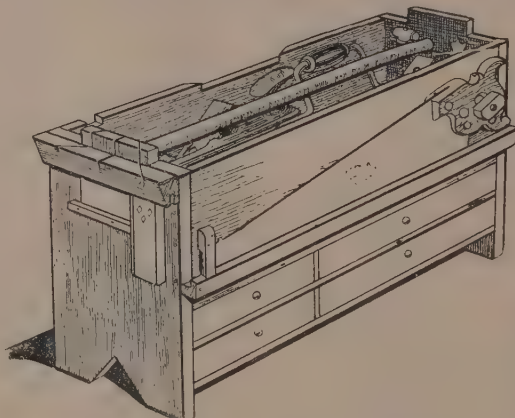


FIG. 1. USEFUL TYPE OF TOOL STOOL. 23 INS. BY 15 INS.

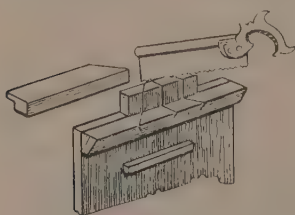


FIG. 2. THE MITRE BLOCK AT LEFT END OF STOOL.

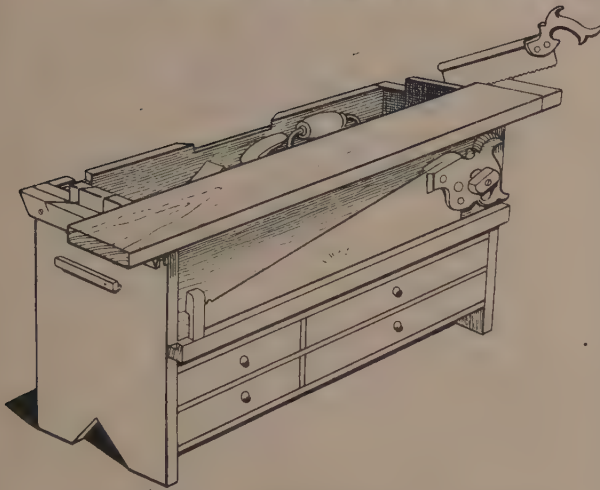


FIG. 3. HOW TO SUPPORT AND CUT AWAY THE WASTE END OF NARROW BOARD OR DOOR RAIL.

advantages over a small tool chest, as it can be easily carried around the house, workshop, garage or garden. Fig. 1 gives a general idea of the tool stool, and it will be observed that the hollow box portion will take such tools as the planes, the brace, screwdrivers, oilstone, etc., whilst the ends may be fitted to take bradawls, gimlets and pliers, etc. The near end of the stool may be fitted to take the try square and other light tools; the back will accommodate an axe and the tenon saw, whilst the front (as shown) will give ample provision for the 18 in. cross cut saw.

The long drawers accommodate the chisels and gouges and the various sets of boring bits which are kept in a fold-up baize bag. The smaller drawers at the left are divided into compartments to contain small nails, screws, eyelets and similar every day tackle. At the near end of the stool provision is made for mitre cutting and square sawing (without having to carry around a cutting board and mitre saw cut), and the method of using the saw to mitre a picture or other moulding is shown at Fig. 2.

At Fig. 3 we show the method of dealing with longer stock when cutting off the waste end, and of course in this case the worker would have his

right knee on top of the board at about the centre of his stool—the accepted position for sawing.

The auxiliary shooting board arrangement is shown in position all ready for using at Fig. 4. At Fig. 5 the shooting board is turned over, enabling the worker to stand on his stool and so gain the few extra inches in height that may dispense with the necessity of a pair of steps.

For readers who have some little experience in woodworking we give the following approximate sizes of this tool stool so that they can set it out and proceed with the work. Height of end, 15 ins.; width of end, $8\frac{1}{2}$ ins.; thickness, $\frac{3}{4}$ in.; length of stool, 23 ins.; drawers 2 ins. and $1\frac{1}{2}$ in. deep respectively; small drawers, 8 ins. long.

Next month in this series we will deal with setting out, sawing and planing; and as the work progresses we hope in other examples of home woodwork to go through the various phases of tool manipulation, such as necessity of face and edge marks, use of the try square and bevel, how to adjust and condition the plane, how to read the grain of the wood for planing, notes on boring with centre pin and twist bits and how to sharpen these, trenching and housing, grooving and rebating, etc., and the making of the simpler carpentry joints used on everyday jobs. Hints on the selection of suitable timbers will also be given as occasion demands. (128)

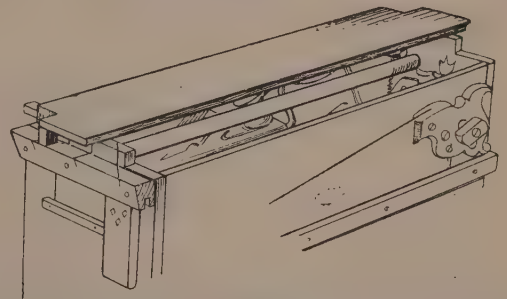


FIG. 5. AUXILIARY SHOOTING BOARD SHOWN TURNED OVER TO SERVE AS AN EMERGENCY STEP.

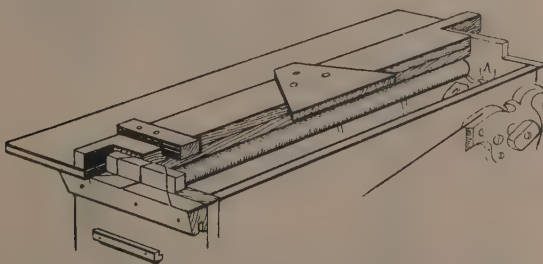


FIG. 4. SHOWING AUXILIARY SHOOTING BOARD READY FOR USE.

"STAINING AND POLISHING."—This volume, one of the most popular of *The Woodworker Series*, has (with the exception of two or three chapters which required little modification) been entirely re-written. In view of new ideas in furniture design and of modern methods, this was felt necessary in order to bring the book thoroughly up to date. New features are the chapters dealing specifically with the treatment of different timbers, whilst prominence is given to such processes as the cellulose finish, the acid finish, french polishing by machinery, cellulose dipping, etc. In a special section an alphabetical list is given of the many agents used in staining and polishing, with detail particulars, and an index of over a thousand references is added. (Price 3/6 net.) Evans Bros. Ltd., Montague House, Russell Square, London, W.C.1.

LADY'S SEWING CASKET AND FIRESIDE SEAT

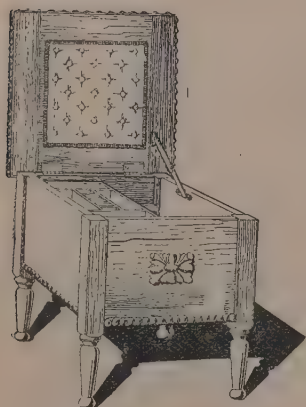


FIG. 1. SEWING CASKET AND FIRESIDE SEAT.

The interior of the casket could be lined with sateen; and a sateen covered cotton-wool needle pad, which should be buttoned as shown at Fig. 5, may be fitted under the lid.

The legs are 1 ft. 4 ins. long by 1½ in. square. They may be of any ordinary turned stock pattern, the turned portion being about 6 ins. long. The sides, which are 1 ft. long by 8¼ ins. wide

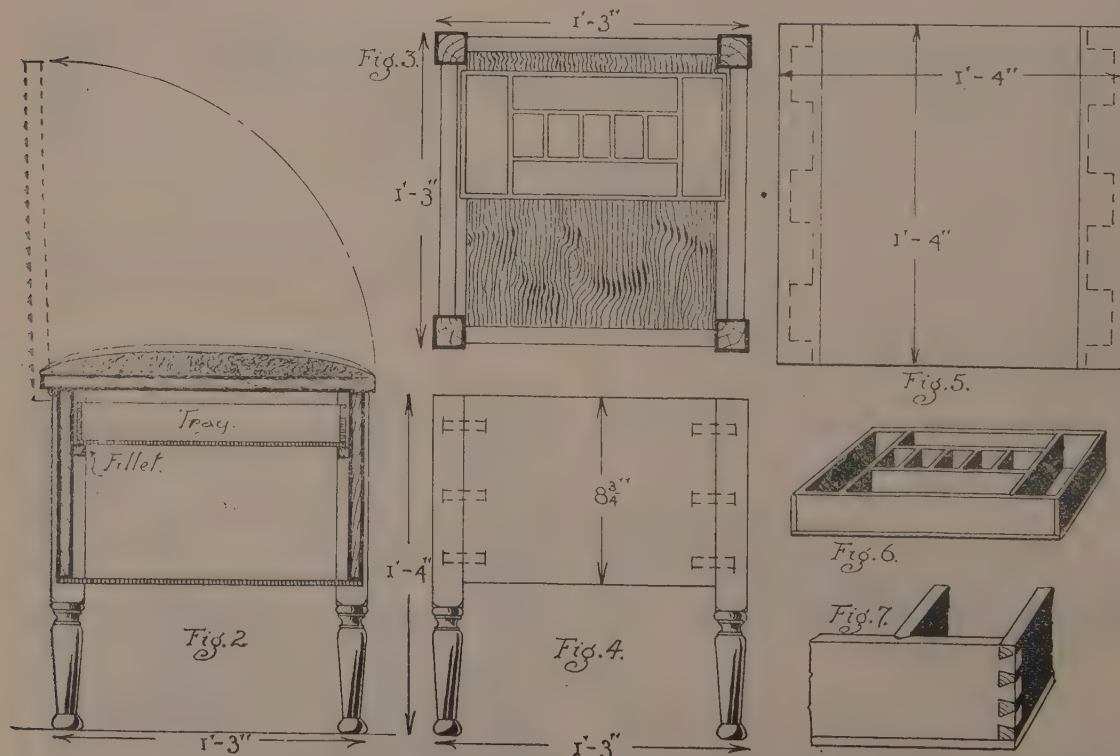
THIS casket, which is of simple construction and inexpensive to make, is made with four legs framed with four deep sides under which a bottom is fitted to form a roomy container for the work in hand. A movable tray for cottons, silks, etc., is fitted between the front and back, and the solid lid is lightly stuffed on the outside and covered with suitable material.

by ¾ in. thick, could be dowelled into the legs, being kept ¼ in. in from the face, as at Figs. 3 and 4. If preferred they may be tenoned, in which case extra length must be allowed. Plywood is used for the bottom, which is fitted over the legs and nailed to the edges of sides. A solid piece 1 ft. 3 ins. long by 1 ft. 4 ins. wide by ¾ in. thick, strengthened with end cleats 2 ins. wide mortised and tenoned to the centre piece (Fig. 5), is used for the lid. Two hinges are used to hinge the lid to the back of the casket, and a lid stay is fitted between the lid and one side.

The tray (Fig. 6) is made from ⅝ in. stuff, the sides being dovetailed together and the divisions fixed with V groove joints (Fig. 7). The bottom is pinned on. Small fillets are screwed at the front and back to hold the tray.

The lid is stuffed with hair, and finished with a layer of cotton wool. The outer covering is tacked around the edges and finished with gimp, or fancy head nails, while the needle pad after being made and buttoned could be fixed under the lid with a few touches of glue, tacked around the edges and finished with gimp.

Strips of ½ in. beading are fixed to the bottom of the sides to cover the edges of the bottom, and a 4 in. by 2 in. carved boss is fixed to the front, as shown at Fig. 1. (111)



FIGS. 2 TO 7. ELEVATIONS, PLAN AND DETAILS.

TIMBER IN USE FOR AIRCRAFT

THE recent contest for the Schneider trophy has drawn attention to the unusual care which is taken in the construction of aircraft in order to ensure that they shall stand up to the most exacting tests. The evolutions of an aeroplane may submit the structure to exceptionally severe strains, and it is the business of the designer to make allowance for any possible circumstance.

Unlike most other forms of engineering the weight of the finished product is of such paramount importance that only a very small margin of safety is allowed over and above the failing stress of the material concerned. This margin varies according to the relative importance of the part, but generally speaking the maximum possible strength with the minimum weight is the golden rule. It can be readily seen then that, in such circumstances, the materials used must not only be of the highest quality obtainable, but they must be rigidly examined and tested for possible flaws, any of which might endanger the safety of the machine and result in loss of life.

In spite of the fact that the trend of modern aircraft design is certainly towards all-metal construction, wood still forms a considerable part of the structure of modern aeroplanes and flying boats; and the foregoing remarks apply particularly to this material as it is much more susceptible to change of climatic conditions than metal.

Before any aircraft may fly it must first of all obtain a Certificate of Airworthiness. This is issued by the country in which the machine is registered, and is only given if the authorities are satisfied that the material used is of the correct standard and that the necessary tests have been carried out. Accordingly the requirements laid down have been standardised. Information has been collected from various sources, and in consultation with the various designing firms specifications have been drawn up to meet the case.

The Timbers Employed.

THE WOODS used in the construction of aircraft are chiefly spruce, ash, mahogany, walnut and birch. Of these spruce is most largely used. It is strong, yet light and not liable to warp, and in consequence is used for main structural members. Unfortunately there is a difficulty in obtaining it in a greater length than 15 feet, but this drawback is overcome by splicing two pieces together. This is not detrimental to the work, as a properly spliced joint, well glued and bound with tape, may easily have an efficiency of 98 per cent.

Ash, being tough and flexible, is used where the timber requires to be bent, particularly when the material has to be steamed before being worked.

Mahogany and walnut are chiefly used for propellers, owing to their straight grain, though the former is also used in parts of the machine where its lightness and freedom from tendency to split are a consideration.

Birch is used in the manufacture of plywood, a commodity which, owing to its lightness combined with strength, figures very largely in the construction of an aircraft.

In order to arrive at the strength of a specimen it is subjected to two tests, one to determine the modulus of elasticity and another to find its compressive strength.

Elasticity and Strength.

ELASTICITY.—The modulus of elasticity is determined by subjecting the selected piece to a bending test, and the compressive strength by applying a load axially on a short test piece.

STRAIGHTNESS.—In addition to this special tests are stipulated in order to observe the straightness of the grain and to find the density and moisture content. The straightness of the grain in timber used for aircraft construction is a very important consideration, as a defect in this respect lowers the strength of the material.

It is, however, not difficult to test for this, although by no means easy to judge by visual inspection. A sample is taken and split with a blunt chisel in two directions at right angles to one another. Any defect in this respect can now be easily seen. A slight deviation of not more than twenty degrees from parallel is allowable.

DENSITY.—The test for density is carried out by making use of the well-known principle of Archimedes, which states that a body immersed in a liquid loses weight equal to the liquid it displaces. A sample of the wood is weighed first in air and then in water, and the difference noted. Knowing the weight of any given quantity of water, the volume of the sample is easily obtained, and hence its density (which is, of course, its mass divided by its volume) is calculated.

THE MOISTURE CONTENT is also an important consideration, and the allowable amount depends on the use to which the particular wood concerned is to be put. If it is intended to be bent by steam treatment, it should not be seasoned or kiln dried. A sample is taken from the end of the plank selected and cut into thin strips. These are weighed and then placed in an oven at a temperature of 100 degrees centigrade, being kept there until no further diminution of weight takes place. The final weight being noted, it is a simple matter to arrive at the percentage of loss in weight. This is known as the moisture content.

Plywood for Aircraft.

PLYWOOD.—No article dealing with aircraft timber would be complete without reference to plywood, which plays such an important part in the construction of the modern machine. In the early days of the industry this was used only for stream-lining, or what is known as "fairing," but now-a-days improvements in the manufacture of plywood have enabled it to be used as part of the actual structure. The advent of the monocoque system of building the fuselage has brought this to the fore. With this method of construction the plywood is used to form a skin

for the body of the aircraft, and as such is required to take actual structural loads in place of the wire bracing usually employed. This method is sometimes used in constructing sea-plane floats and the hulls of flying boats.

Birch, ash, satin walnut and mahogany are the materials sanctioned for use in the manufacture of three-ply, and of these birch is by far the most common. Special care is taken in the selection of suitable wood, which must be absolutely free from any dead knots or other flaws. The wood should not absorb moisture readily, as this causes the plies to open out at the edges. The several plies must therefore be well cemented together in order to minimise the tendency of the separate layers to part in use.

TESTS FOR PLYWOOD.—In order to test for this particular failing, a sample piece 6 ins. by 6 ins. is immersed in boiling water for three hours in the case of veneers up to 1/32 in. thick. For thicker material this time is extended to six

hours. Afterwards the specimen should show no appreciable signs of separation at the edges, even when it is dried out again at a temperature of 70 degrees Fahrenheit.

Further stringent tests are applied to test the quality of the cement used. Two specimens are made up and kept for one month in an atmosphere saturated with water vapour. From time to time they are examined to see that no deterioration has taken place, and after the stipulated period should not show any signs of separation at the edges.

It is obvious that only first grade material and good workmanship will enable the finished product to be pronounced satisfactory for aircraft use, and it is due to the thoroughness of the tests which are carried out to guarantee this high standard, and the infinite pains which are taken to eliminate possible failures, that aircraft to-day can be regarded as a reliable means of transport. (123)

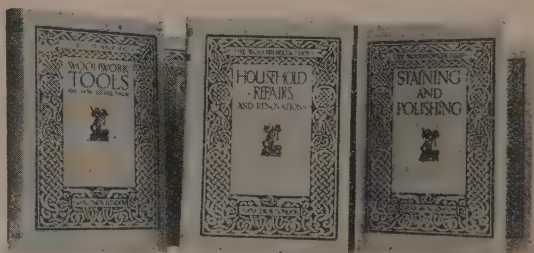
NOTES ON OILSTONES

A QUERY not infrequently asked is how to make a slow-cutting oilstone cut *quickly* and how to make a quick-cutting one cut *slower*. Oilstones are of course natural products and the grain or fineness of the particles determines the quality of the stone. A Washita stone, for instance has almost the appearance of white Sicilian marble and is rather expensive. It is a fairly fast cutting stone and is useful for the frequent sharpening of the jack plane or the chisel. The old school of cabinet makers claim that any natural oilstone which becomes slow in its cutting action can be remedied by boiling it for six hours in weak soda water.

For a slow and fine grained oilstone, such as the Turkey, the cutting power could be increased by sprinkling it with a pinch of Wellington knife polishing powder (emery) immediately before applying the oil. Oilstones, however, should be selected according to what is required of them. Turkey stone is expensive and one of the best slow cutting stones for razors and similar fine edged tools.

Arkansas oilstones cut slowly but give a very fine edge for carver's gouges, etc. Canada stones vary greatly in quality. Some are medium-cutting and others slow-cutting and as hard as slate; indeed, Canada oilstones are somewhat of a gamble.

Charnley Forest oilstones from Leicestershire are probably the best of the English varieties.



THE MOST USEFUL HANDBOOKS FOR THE HOME WORKER—"THE WOODWORKER" SERIES.

They are of a dappled grey shade, streaked with red, and are slow in their cutting action.

For natural oilstones the best lubricant is neats foot oil. For composition stones (such as India medium) a lubricating mixture of half and half machine oil and paraffin appears to answer the best. Use an India medium composition stone for quick cutting,

and finish the edge by rubbing it on a Washita oilstone. This appears to be the best and quickest method and it is used by the writer who is responsible for sharpening upwards of 100 planes and over 240 chisels per week.

Oilstones should not be allowed to wear hollow in the middle or concave in width, and to counteract this fault they should be frequently rubbed down on a flat piece of flagstone. If the oilstone is rubbed face downwards on a York stone or an old doorstep and fed with builder's sand and water, it may be levelled up in about five minutes.

Composition oilstones and oilslips can now be bought in all sizes and shapes—square, oblong, triangular, conical and conical and tapered. A flat piece of sheet zinc nailed over the ends of a piece of hardwood to form an artificial oilstone is quite good for quick and rough cutting if fed with powdered emery and machine oil. The edge should then be finished on a fine natural oilstone. It is of course the emery that grinds in the above case, and it is useful for getting rid of that hump backed appearance when there is no grindstone at hand. (124)

THE QUESTION BOX

QUESTIONS only of general interest can be answered in these columns. Readers will kindly note:—(1) Detailed replies or sketches cannot under any circumstances be sent by post; but, as the Editor may require further information, a stamped addressed envelope should be enclosed. (2) Full particulars of what is required should be clearly stated, and (if possible) a rough sketch with over-all sizes enclosed. (3) Questions of purely personal interest cannot be dealt with in these columns.

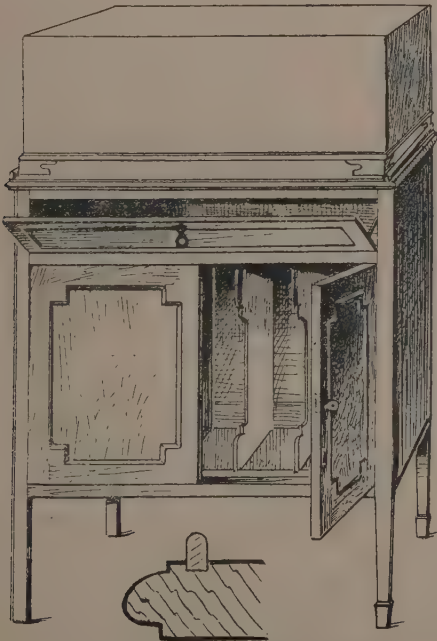
NOTE.—With each Query must be sent a Coupon (see foot of page iv. of cover). All queries to be addressed: Editor, THE WOODWORKER, Montague House, Russell Square, London, W.C.1.

Stand for Wireless Cabinet

J. T. G. (Darwin) wishes to make a stand for his wireless cabinet, to include a cupboard for records.

REPLY.—Our design shows a stand containing a cupboard in which 12 ins. records could be stored. Including a height of about 9 ins. clear for the legs, such a stand should not be less than 2 ft. 7 ins. to 2 ft. 9 ins. high over all, or making a total height of 3 ft. 6 ins. when your wireless cabinet is in position, the dimensions of the cabinet as given by you being 25 ins. by 16½ ins. by 8½ ins. Width over legs as shown would be just under 2 ft. 2 ins., whilst the depth back to front of cupboard outside might be about 18 ins. over legs. With a height of 2 ft. 7 ins. allowed, the upper space is a clear 4 ins. high, fitted with a fall front which may be either plain or panelled and supported when down by a brass elbow joint or chains. Thickness of shutter in hardwood may be ½ in. full or ¾ in., the fall itself being fitted with either one or two drop handles as preferred. The cupboard is allowed a height of about 15 ins., which would be sufficient to afford clearance for records when replacing them after

use without undue risk of damage. The interior is fitted with divisions of ½ in. or ⅝ in. thickness, preferably shaped as in sketch. Thickness of the doors here had best be ¾ in. net or 1 in. net if mahogany is used, framed up of stiles and rails 1½ in. wide. These are mortised and tenoned together and pegged with 1 in. by 1 in. corners, tongued in to allow for a ¼ in. section mitred mould to be dropped in on face as a finish to the broken corner effect. Legs may be of 1½ in. by 1½ in. stuff, either finished square for their full length and with a ¼ in. ovolo mould worked top to bottom on the outer angle, or the legs may be tapered with moulded toe for a neat result in mahogany. Ends may be of ¾ in. thickness, or 7 mm. plywood may be substituted, lined by rails 2½ ins. wide, top and bottom. The carcass back may be framed up of stiles and rails, 3 ins. wide by ½ in., mortised and tenoned together to form two panels, or this back frame may be fitted with a rail 7 ins. wide at top to form a solid back behind the upper space. The carcass will be tied at top by two stretcher rails, 3 ins. by ½ in., dovetailed into position. The mid-rail of equal thickness may be tenoned into position, or it may be dovetailed to legs behind the joint, being stopped back ½ in. from face edge. A similar rail will be fitted at back, but allowing for the framed carcass back to be rebated in flush, and upon these two rails a bottom of 5 mm. plywood will bed. The fall can be fitted with a bullet catch when up. The carcass bottom may be formed by front and back rail as before, these being sufficient to receive a separately made division with top and bottom to bed thereon when entered from the back. If desired the lower doors may be made of 7 or 9 mm plywood. The table top may be of ¾ in. thickness with moulded edge, and might also have a lipping of ¼ in. by ¼ in. round three sides in order to hold the wireless cabinet. (121)



STAND FOR WIRELESS CABINET.

NEW READERS are reminded that, during the spring months, there is invariably an increased demand for copies of THE WOODWORKER, and that the only way to make certain of regular delivery is to place an order with the local news-agent. Inquiries show that failure to secure a copy promptly is due to neglect of this simple precaution. See that your February number is definitely on order. Designs of special interest are in preparation.

We may add that, to any of your friends likely to be interested, we shall be pleased to post a specimen copy of THE WOODWORKER if you will send their names and addresses to Evans Bros., Ltd., Montague House, Russell Square, London, W.C.1.

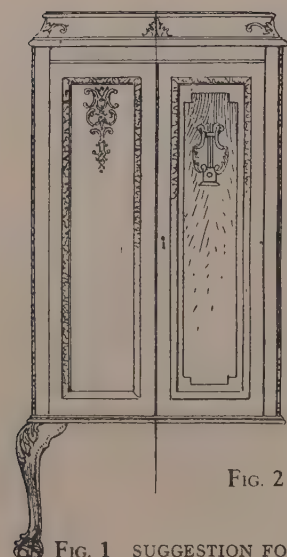


FIG. 2

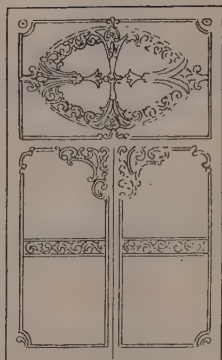


FIG. 3

FIG. 1 SUGGESTION FOR GRAMOPHONE CABINET.

Gramophone Cabinet

A. F. (Leeds) wishes to make a mahogany gramophone cabinet and asks for help with the design.

REPLY.—The cabinet could be made with a certain amount of elegant effect on the lines you suggest, providing you take care to avoid an excess of ornament in working out the whole thing. We offer a sketch of the article to the sizes you wish, namely a total height of $45\frac{1}{2}$ ins., to include a height of 12 ins. for the cabriole legs, these being finished with carved knees and claw and ball feet. The uprights may be $1\frac{1}{2}$ in. x $1\frac{1}{2}$ in. and might be improved by working the outer angle with a $\frac{1}{4}$ in. ovolo mould which you might carve up to pearl and bead detail, or a groove might be worked on the angle for the reception of a length of similar detail, glued and panel-pinned neatly into position. The width of the cabinet being 21 ins., the pair doors will necessarily be narrow for their full length, but they will be made interesting if the acanthus carved mould is used for the panel surround. We are not keen on pendant carvings generally, other than a laurel or husk festoon with pendant husks. A neat effect could, however, be obtained with an applied detail similar to that indicated at Fig. 1, which could be cut out of $\frac{1}{4}$ in. stuff and carefully graved up by veining the leaves. Alternatively you might fit an applied panel of veneer with broken corners, as at Fig. 2, and upon this mount some suitable device such as a lyre which again could be veined up to give a finished effect and fixed after the panel itself has been polished. The carved mould would again be used as a surround. The edge of the frame which caps the turntable well might be carved with either a leaf detail or a rope or nulling detail reversed from the centre.

In reply to a further point, you wish to face the gramophone horn with a fret-cut panel and also fit a pair of doors below this, to give access to space for storing records, the whole to be enclosed by the pair of doors (Figs. 1 and 2). As this inner panel and lower doors have to appear as one panel and be fretcut, it will possibly result in a somewhat elaborate effect. As a suggestion you might work on the lines of Fig. 3 and simplify according to your liking by omitting the horizontal fret across the centre of the lower doors, or by reducing the depth of the central fret below the oval mask to the gramophone horn. The $\frac{1}{8}$ in. faced plywood will be all right for the inner panel. For the doors a $\frac{3}{8}$ in. thickness plywood should answer all purposes. (82)

A Dark Oak Stain

T. W. (Chelmsford) wishes to use vandyke brown crystals to stain a couple of adjustable chairs made of American and Italian oak. He asks what strength is needed for a dark oak shade, and whether, in polishing, it is possible to give a groundwork by the brush method before applying the rubber.

REPLY.—Dissolve your vandyke water crystals in warm water, or dissolve your spirit vandyke crystals in methylated spirits (there are two kinds). If you use the water stain, add a teaspoonful of ammonia to one pint of the stain; if you use the spirit stain add $1\frac{1}{2}$ ozs. french polish to a pint of the stain to bind it. Stain the work and let it dry (48 hours for a water stain; 6 hours for a spirit stain). If the colour is not dark enough you can apply a second coat of weakened stain of either variety; in fact a better tone is obtained in nearly all cases by using weak stain and giving the work two coats. It is always good policy to test the shade of any stain on an odd piece of scrap wood of the same variety before you begin work. After testing you can weaken or strengthen your stain accordingly. The staining completed, give the work a brush coat of painter's knotting, or of shellac and methylated spirits made by dissolving 6 ozs. brown shellac in one pint of methylated spirits. When dry, paper down smooth with No. 1 or No. 0 glasspaper according to the fuzziness of the work. You may then fill in with a dark walnut coloured paste wood filler and, when this has dried 24 hours, give another coat of brush polish. When dry, ease down with No. 0 glasspaper and ply the polishing rubber until you have obtained the desired gloss. It is not usual to fill in dark antique oak work; but if you fancy a closed grain by all means use a filler. A suitable one for your purpose could be made from crushed dry whiting mixed with brown umber and a pinch of vandyke brown powder. These powders should be mixed to the consistency of thick paint by the addition of turpentine. Then add 1 oz. gold size and stir all well together. You must, of course, mix the required dry colours by trial until you arrive at the approximate shade of your stain. (65)

Pedestal Draw-Leaf Table

F. G. L. (London, S.E.16) wishes to make a pedestal dining table, and asks for help with the lower framing.

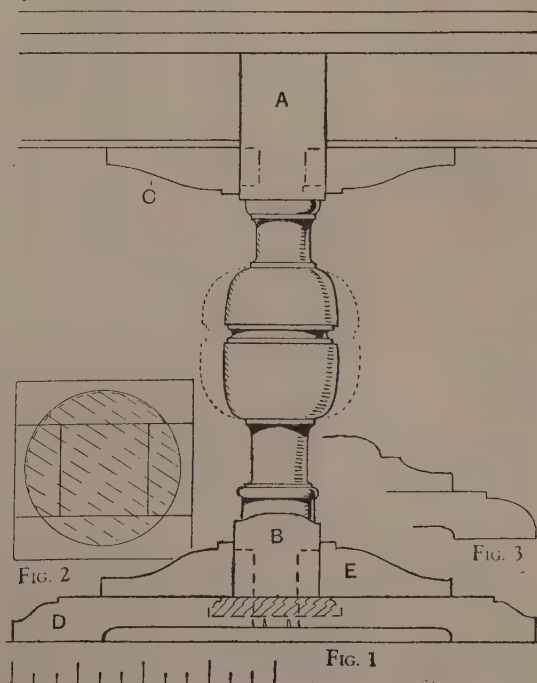
REPLY.—The details given in our sketch, which is drawn to scale, should enable you to work out the under part of the draw table in a satisfactory manner, finished dimensions being for a 3 ft. by 6 ft. size when extended. The end elevation shown at Fig. 1 shows the legs turned up from 4 in. by 4 ins. stuff. When finished, the upper portion forming the framing block (A) will show about 6½ ins. long by a full 3½ ins. The total length allowed for the turning is 14½ ins., below which the framing block (B) shows 3½ ins., to which must be added the length sufficient for cutting tenon to enter the base strut. You do not indicate in your sketch the size of swell you would prefer for the bulbous portion of the turning. This might vary between a diameter of 5 ins., as shown, to a full 7 ins. diameter as shown by the dotted line. For this purpose the shaft must be built up as at Fig. 2, the additional glueings being made up on the 4 in. by 4 in. square, preferably tongued together or keyed as a stiffening hold. The actual height allowed for this bulbous portion is 7 ins., but this may be increased to 8½ ins. in length for an elongated type of swell. As shown at Fig. 1, the top turned member would be ¾ in. high with a ½ in. member immediately under it, below which the necking shows a full 2 ins. high by 2½ in. diameter, with a ¼ in. member under. The members turned at or about centre of bulb are allowed about 1 in. high, and the necking below the bulb 2½ ins. high, independent of the several members above and below it. The table tops together make up a thickness of 1½ in., and the framing rails under show a full 4 ins. high with a ¾ in. bead finish under. Below this the shaped brackets (C) finish 6 ins. long by 2½ in. wide, extra being allowed for the tenons to enter A. The parts are also screwed to the framing rails above. These framing rails may be housed together and glue-blocked or screwed, or they may be dovetailed together, the finished length of the framing being about 6 ins. less than that of the table tops themselves. Either ¾ in. or a net 1 in. stuff may be used here, the necessary cuts for lopers to travel in evenly being made later. The strut base (D) is allowed a length of 2 ft. and may be either of 4 ins. by 2 in. stuff, with the bottom edge cut up and the corners rounded as indicated for a lightened effect, or these pieces may be kept 1½ in. high if the bottom edge is finished flush with the ground. Mortises will be cut in centre for the tenons on block above to be entered right through and wedged, or the parts can be bolted together. The base brackets (E), showing 6 ins. by 2½ ins., may be 1½ in. thick or 2 ins. if preferred, cut to shape and tenoned into position in addition to being screwed from the under side of D. The stretcher rail between the base struts may be of 6 ins. by ¾ in. board, moulded on each of the longer edges

with the ends cut to butt between the base struts, in addition to being either tenoned or dovetailed into them. In some cases, instead of this board a couple of 2½ in. by 1½ in. stretchers may be tenoned into position if preferred. Instead of the lines for the base struts and brackets (D and E) being as at Fig. 1, they may be worked out to follow the line of Fig. 3, the latter possibly being what your pencil sketch is intended to convey. The total height for a dining table is usually 29 ins., the top being usually framed up with three flush panels and the extensions framed with one panel each end with beaded edge. (83)

Stain for Mahogany

T. J. (Edinburgh) asks how to stain Honduras mahogany so as to obtain a rich dark plum colour.

REPLY.—Obtain about one pint of Stephen's rosewood water stain and apply this to a small piece of the mahogany. If the colour is not dark enough, add a little ebony stain (Stephen's). Stir up, and again test the colour on the opposite side of your scrap wood. Let your test piece be of the same board or boards which you are using for your sideboard. Use a dark mahogany filler and body up the work with polish treated with bismark brown solution. Finish with an orange polish which should be devoid of aniline colours such as bismark brown. If you prefer a wood dye to a water stain, mix Johnson's No. 129 dark mahogany with No. 172 Flemish oak until the desired shade is obtained. (93)



DETAILS OF DRAW-LEAF TRESTLE TABLE.

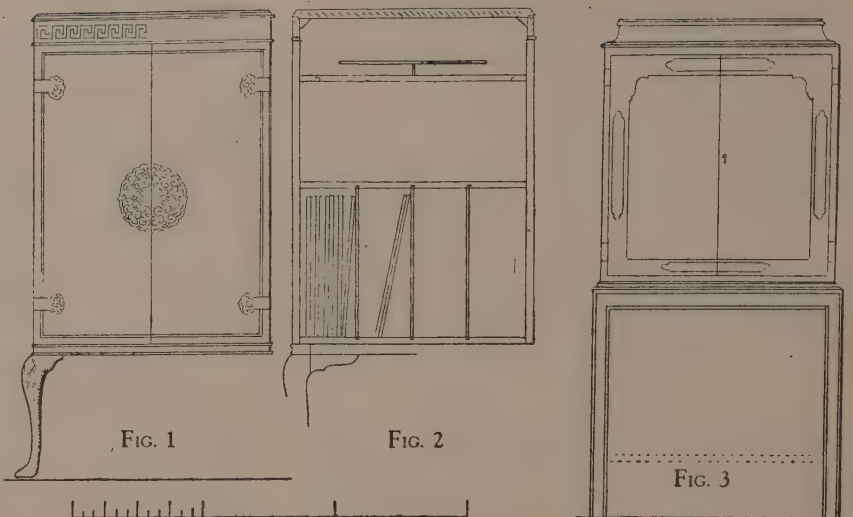
Gramophone Cabinet

A. S. F. (Bolton) is making a gramophone cabinet, and asks for help as to dimensions.

REPLY.—Our sketch is very much on the lines of your design, although we have made a few minor alterations. As seen at Fig. 1, the height over all of cabinet shows about 3 ft. 7 ins., width across front being 1 ft. 9½ ins. The depth back to front must, of course, be governed to a great extent by the turntable and tone arm to be fitted, but a usual average for a well proportioned cabinet of this type would be a depth of from 22 ins. to 24 ins. over all. The length of leg also will be governed by the height of space allowed for the horn. We presume that you wish to store records below the horn chamber, and in this case the most economical method of utilising available space would be to fit vertical divisions as Fig. 2 indicates in front elevation. With 9 ins. allowed for horn space and 13½ ins. for 12 ins. records plus sufficient clearance, the net height of leg as shown is 11 ins. full, above which a net 1 in. in height is allowed for the stool framing, width of which may be 2½ ins., to be finished with a ½ in. bead mitred round all four sides on upper and lower edges. The depth allowed for turntable and tone arm is usually about 6 ins. including clearance, which may vary a shade according to the particular make of fitting to be installed. The top is intended to open with a rim formed by the frieze, finished height of the whole being a shade under 3 ins.

You will see we indicate a pair of doors as you wish, together with the circular lock plate and hinges to match, on the lines of the cabinet shown in THE WOODWORKER for November, 1928. These mounts we presume you would have either lacquered brass or nickelled, the cabinet itself being finished by ebonising throughout. Our suggestion is that a ½ in. bead be introduced on the face of the cabinet as a surround for the doors, and that this be gilt.

As the keynote of your enquiry appears to be for plain treatment, we offer a suggestion for an alternative method of working out the design (Fig. 3), this having the cabinet portion for turntable and horn only, with a shelf for records below as indicated by dotted line. Sizes for such a cabinet may be 22 ins. wide, 3 ft. 8 ins. full high, and depth 25 ins. measuring over stool.



SUGGESTED DESIGN FOR GRAMOPHONE CABINET.

The face treatment of cupboards is effected by mounting a fret-cut surround about 1½ ins. wide by ⅝ in. thick, pierced in centre of each side to a length of about 9 ins. full. This, if neatly shaped on the inner edges and mounted on 7 mm. plywood doors by glueing and further fixing with needle points, would afford an interesting appearance to an all-black treatment. (82)

Sandpapering Beech Strips

H. H. (Sheffield) wishes to sandpaper a large quantity of beech strips on his small sandpapering machine but finds that, however slowly he runs his machine, the beechwood is burned. He asks at what speed the sanding belt should be run, and whether emery, glass, sand or garnet would make the most effective belt.

REPLY.—Belts made of garnet paper or garnet cloth appear to be the most satisfactory. Garnet is not as sharp as glasspaper, but the particles of garnet chip off when in use at sharp angles and thus it lasts longer than a glasspaper or sandpaper which wears smooth. Garnet, which is crushed flint or rock crystal quartz, is common to many countries. A machine having a sandpaper belt of 11 ft. long should be in contact with a 10 in. diameter driving pulley running at approximately 950 revolutions per minutes. If woods such as beech, birch and sycamore are held too heavily on the belt or are kept in contact with the abraasive for too long a period, the result will be scorching or burning. We can only answer you in a general way because you omit to give full details of the type of machine you are using and you do not state whether you apply the wood on to the belt, or whether you apply the revolving belt to the wood with a hand or spring pad. It may be that your belt is too short and this would not give time for the dust particles to clear out. (67)

Handles on an Old Oak Dresser

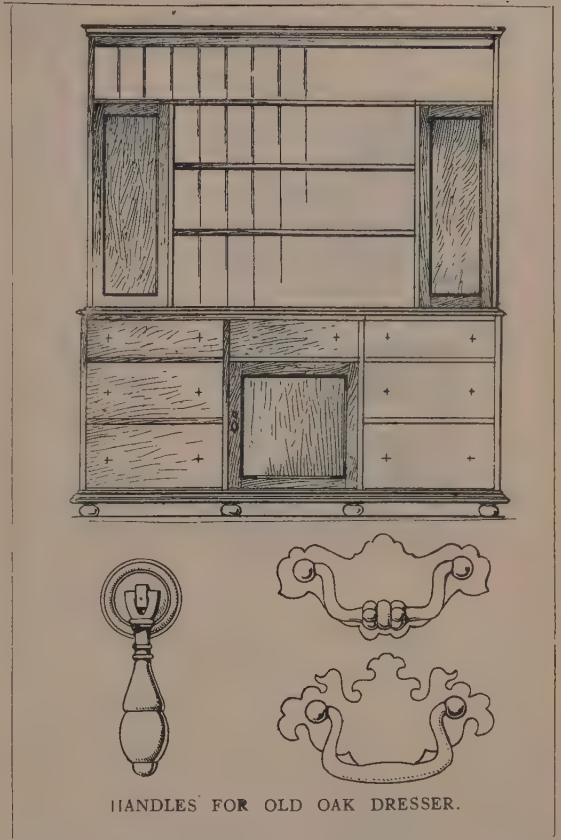
G. H. R. (Cheshire) has acquired an old oak dresser, and asks what kind of handles to use.

REPLY.—The dresser indicated by your rough sketch appears to be a country-made piece and if genuinely of the period you give, 1700-1730, would have mouldings and any odd ornamental detail in the Queen Anne style. You would therefore be safe in selecting for your brass furniture handles of a pronounced type, most of which were shaped in quaint fashion (and sometimes pierced) as shown in our sketch. Although not often seen, instead of mounting brass work, it would not be out of keeping with such a dresser to fit the drawer fronts with ebony wood handles, which might be turned up to detail somewhat similar to the ordinary entrance door type, or nicely modelled on the lines of an elongated acorn. With regard to the top and sides being made up of boards which are not cut parallel but are finished wider at one end than at the other, we do not know that anything special is indicated by this. Probably the maker was simply using up material at hand. (97)

A Swivel Chair

H. M. (Hensingham) wishes to make a chair with swivel movement.

REPLY.—We offer a suggestion (Fig. 1) for a chair on the lines you require. Width across front of seat may be 20 ins. to 21 ins.; depth back of front, 17 ins.; width of back, 16 ins., and height of back 18 ins. to 20 ins. Top rail could be 3 ins. wide, or 2½ ins. wide if a narrower effect is preferred, shaped from the solid with a curve ½ in. to ¾ in. deep. The legs would be of 1½ in. by 1½ in. thickness, centre panel of back about 8½ ins. wide by ¾ in. thick, slats 1½ in. by ¾ in. The arms could be fitted to back at a height above seat of 9 ins. to 10 ins., the arms themselves being shaped from pieces 1 ft. 7 ins. by 3 ins. by 1 in., and the arm supports from pieces 12 ins. by 1½ in. by 1½ in. The second rail of back can be finished to 1½ in. by



HANDLES FOR OLD OAK DRESSER.

¾ ins., and the seat rails of 2 ins. by 1½ in. stuff tenoned to back uprights and to angle stumps in front 1½ in. by 1½ in. by 2½ ins. The front rail is shaped on the under edge to a shallow line, and the seat frame itself rebated ¼ in. deep to receive a loose drop-in-seat. The seat itself will be made up on a mortised and tenoned separate frame of 2 ins. by ¾ in. thickness, its finished size being such as to allow ½ in. clearance within the rebate, such clearance being necessary for the covering thickness to press in. The strut legs under can be cut from 1½ in. material to shape, to be tenoned into a central 3 ins. by 3 ins. by 6 in. block which can be turned if desired. Castors are shown but could be omitted and "domes of silence" fitted. The swivel movement, which can also be obtained with a tilting action, is usually procurable through any good class furnishing ironmongers, or can be obtained from Messrs. Tubbs and Farey, Goodge Street, Tottenham Court Road, W.1. Fig. 2 shows the chair as upholstered, dimensions in this case being: width across front of seat, 21 ins. to 22 ins.; depth of seat, 18 ins.; height of arms, 9 ins.; height of back, 18 ins.; width across back, 23 ins. to 24 ins. The chair would look well finished around the bottom edge of seat with round-headed brass nails, which also might be used to outline the front shaping of arms. (96)

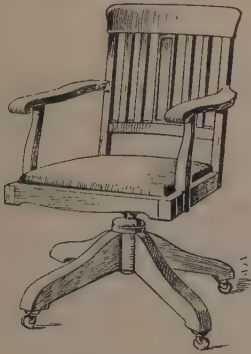


FIG. 1.
ARMCHAIR WITH SWIVEL MOVEMENT.

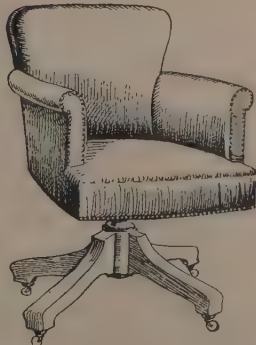


FIG. 2.

LIGHT BUREAU BOOKCASE

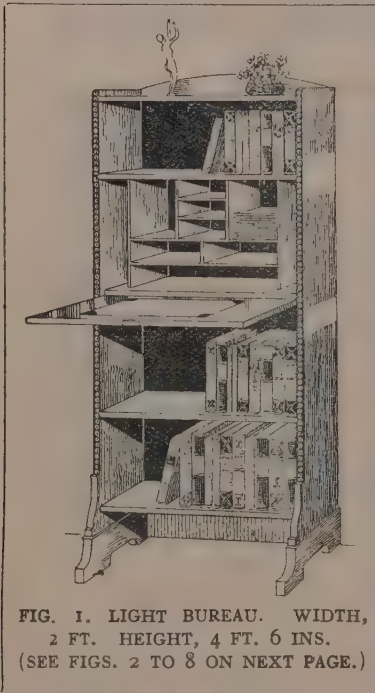


FIG. 1. LIGHT BUREAU. WIDTH, 2 FT. HEIGHT, 4 FT. 6 INS.
(SEE FIGS. 2 TO 8 ON NEXT PAGE.)

BEFORE a piece of work is put in hand consideration has to be given to its usefulness and the cost of making. The bureau bookcase sketched at Fig. 1 is made with three book shelves which will hold about fifty volumes. A folding writing flap is arranged at a convenient height, and the rack behind it will hold all the stationery usually required. The

long by 1 ft. 3 ins. wide; two end rails of writing flap, 1 ft. 5 ins. long by 2 ins. wide; two bottom bearers, 1 ft. 1 in. long by 4 ins. wide by 1 in. thick; plywood back, 4 ft. long by 2 ft. wide, and a 9 ft. run of 6 ins. by $\frac{1}{4}$ in. stuff for the stationery rack.

IN MAKING THE BOOKCASE the sides are prepared as at Fig. 5. The shaped pieces are dowelled and glued to the edges of the sides, and both the sides and shaped pieces are tenoned into the bearers, the latter being shaped as shown. The shelves are either tenoned or dovetail grooved into the sides, the form of tenon being given at Fig. 6 and the dovetail at Fig. 7. The top shelf is kept $\frac{1}{8}$ in. in from the back edges of the sides for the top back rail. All the other shelves are kept $\frac{1}{4}$ in. in for the ply back, and the middle shelf $\frac{1}{8}$ in. in for the writing flap. Rebates are cut in the back edges of the sides for the ply back. The top back rail is rebated in and screwed to the back edge of the top shelf, and the small rebate for the ply back is also cut across the bottom edge of this rail as shown at Figs. 3 and 8. Before being finally screwed in place the top back rail is shaped as at Fig. 2, and the ply back is fixed with nails.

THE WRITING FLAP is strengthened by framing the rails at the ends, as at Fig. 9, and is hinged to the centre shelf, or fixed by driving long screws through the sides. Either of these methods of fitting the flap are quite satisfactory. The part which falls under the shelf holds the flap in a horizontal position, but a light chain or rule joint could be fitted if desired. A stock pattern fret could be applied to the face of the flap, and a suitable lock and key fitted.

STATIONERY RACK.—A convenient form is shown at Fig. 4, the top and sides being dovetailed together and the other parts fixed with V-grooved joints. A fillet is fixed under the second shelf in front of the stationery rack to take the flap when shut, and strips of $\frac{1}{4}$ in. turned shot beading could be fixed to the front edges of the sides for ornamentation. (130)

bookcase is suitable for any of the living rooms, and may be made from one of the usual cabinet woods selected to harmonise with the surroundings. The working dimensions are shown in the illustrations, of which Fig. 2 shows an elevation, Fig. 3 a section, Fig. 4 elevation showing the interior and Figs. 5 to 9 working details.

THE WOOD used should finish $\frac{1}{8}$ in. thick. The parts required are: Two sides, 4 ft. 4 ins. long by 8 ins. wide; two shaped pieces for the bottom edges, 8 ins. long by 2 ins. wide; five shelves, 2 ft. long by 8 ins. wide; top back rail, 2 ft. long by $3\frac{1}{4}$ ins. wide; writing flap, 2 ft.

A READER'S KITCHEN WORK BENCH

COMBINED TABLE WORK BENCH.—I enclose a sketch of what I consider a most useful piece of furniture. A feature which I think will appeal to the home worker is that when he starts on a

job, most of the tools will be at hand and ready for use. Another feature is that the lady of the house can always keep a clean white top to her kitchen or scullery table without having it continually spotted with solder, grease, oil, paint or varnish. As will be noticed from the front view this combined table and bench contains a low shelf and a tool drawer and vice. In this sketch the top is shown closed and ready for use as an ordinary scullery table. In the end view, the deep top which takes the form of an inverted tray of about $3\frac{1}{2}$ in. in depth is shown open, and in the interior of this lid or tray suitable leather straps and wooden turnbuttons are fitted so that such tools as the saws, try squares, hammer, rule, pliers and screwdrivers can each be fixed in place. The tray portion which opens is hinged to a fixed nail and screw cabinet containing

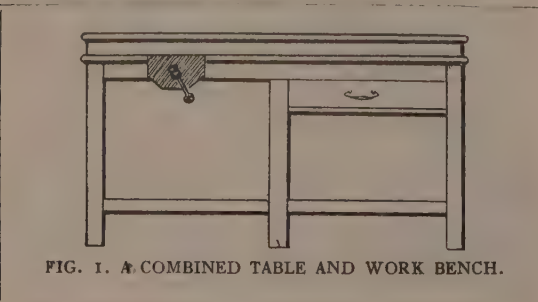
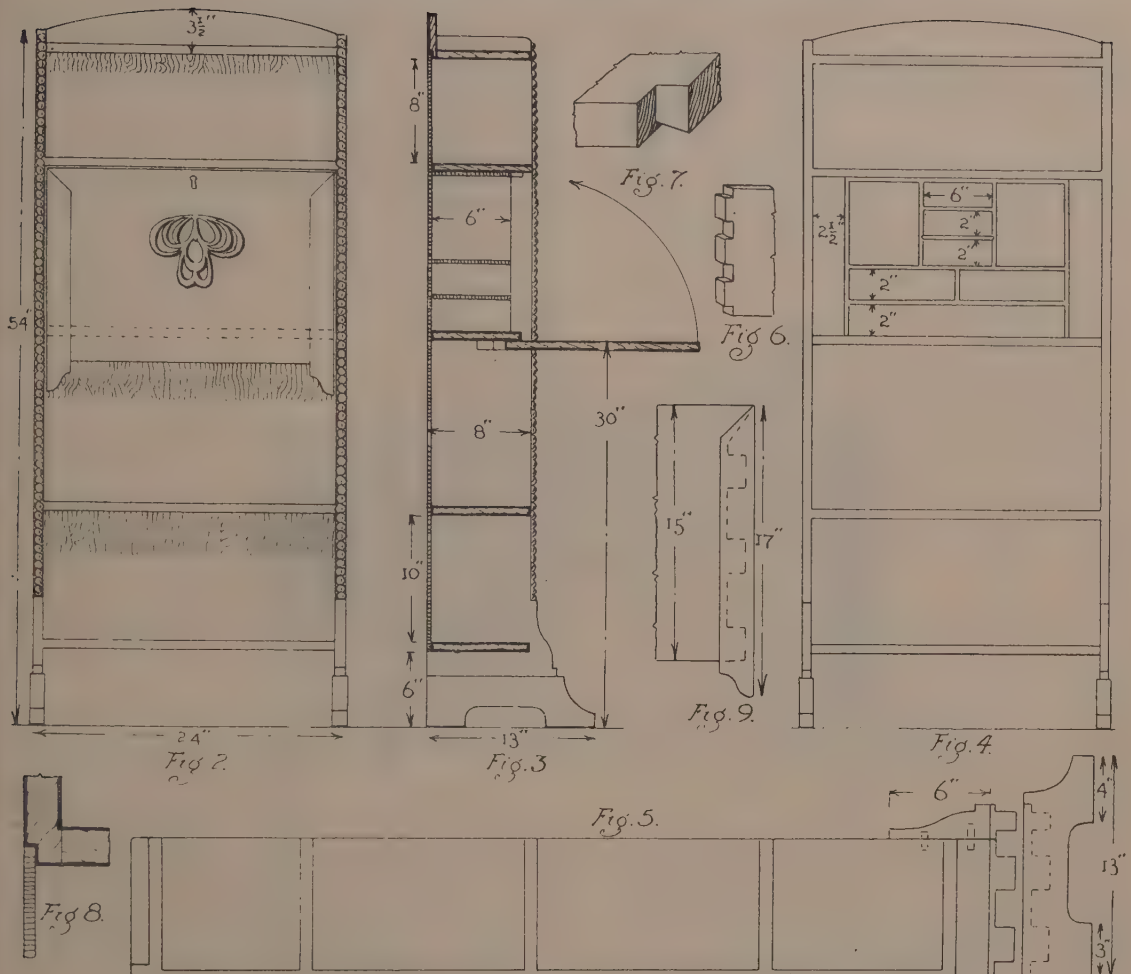


FIG. 1. A COMBINED TABLE AND WORK BENCH.



FIGS. 2 TO 8. ELEVATIONS, SECTION AND DETAILS OF LIGHT BUREAU BOOKCASE.

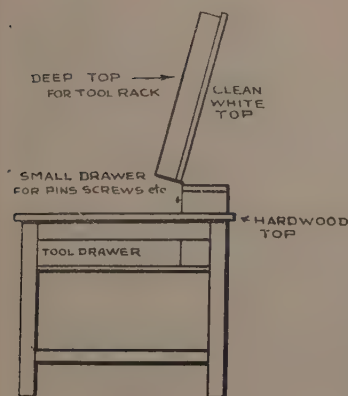


FIG. 2. END VIEW OF COMBINED TABLE AND WORK BENCH.

small drawers and pigeon holes, thus allowing of easy access to the sundry staples, tacks, etc., required for everyday use. The tool drawer is used for the heavier and more bulky tools such as the planes, pinners, soldering bit and mallet. The deep top gives sufficient clearance for

small pieces of $\frac{1}{4}$ in. wood and other oddments to be left in a half finished state on the bench until the worker is again able to continue the job. The simplest way to make the lid is to dovetail the corners and, after fixing on the white top board, cut the top lengthways so that it can be hinged and thus form the two portions. The drawers or compartments can be made and fitted into the narrow or fixed part of the top as the work is completed. For a five-foot table bench the legs may be of 2 ins. by 2 in. red deal. The framework should be neatly tenoned, wedged and glued together. For the drawer the front should be $\frac{3}{4}$ in. thick and the sides and back $\frac{1}{2}$ in. thick. The bottom, which is of plywood, should not be less than 5 mm. in thickness, because the drawer contains the heavier tools. The table should have one coat of glue size, one coat of painter's knotting and a final coat of inside oil varnish. W. Marsham (Ealing).

PRIZE COMPETITION AWARDS

I. THE TWELVE MOST USEFUL JOINTS.

IN this competition fifteen well known joints were illustrated, and readers were invited to select twelve of these and arrange them in their order of general usefulness. A very large number of entries were received, and the three prizes offered have been awarded as follows:—

FIRST PRIZE.—A Waterman's gold-mounted self-filling Pen in two tone colours, with Pencil to match, in case, value 43s.: J. COMLEES, 35, Burr Road, Southfields, S.W.18.

SECOND PRIZE.—A Waterman's gold-mounted self-filling Pen with Pencil to match, in case, value 35s. 6d.: A. COBB, 190, Stanhope Drive, Horsforth, near Leeds.

THIRD PRIZE.—A Waterman's self-filling Pen, with Pencil to match, in case, value 20s. 6d.: MAUD GASTON, 7, Brookville Terrace, Ballymena, Co. Antrim.

SPECIAL MENTION.—M. Britton, A. G. Compson, Daniel Dow, J. Edgington, J. Johnstone.

II. WOODWORKING TERMS.

This competition proved less popular than No. 1, but the entries have been interesting. A list of twenty woodworking terms was given, brief definitions of these being invited. For reference the terms (with their definitions) are repeated:—

ACORN TURNING.—Jacobean turnings resembling the acorn.

ARMOIRE.—A type of old French cupboard.

BADGER.—A wide rebate plane with skew mouth.

BALK.—The log of timber roughly squared.

CARTOUCHE.—A French carved decoration in the form of an unrolled scroll.

CLASH.—The silver figure in oak.

COMPO.—Composition ornament (representing wood carving) cast from a wood mould, originally employed in decoration by the Brothers Adam.

FINGER JOINT.—A joint used for the brackets of tables with flaps: the joint has five tongues which interlock and are held by a centre pivot.

FLY RAIL.—The opening and supporting side rail of a flap table.

HOOK JOINT.—A dust-proof joint (S shaped in section) used for the meeting stiles of museum case and show case doors.

JIGGER.—A treadle saw used for frets and light shapings.

LOPER.—Another name for the slides (or sliders) used for the fall front of bureau and for extending tables.

NOSING.—A rounded projection such as the semi-circular edge of a stair tread.

PLANK.—A timber term signifying cut wood not less than 11 ins. in width and over 1½ in. in thickness (usually 11 ins. by 3 ins.).

QUIRK.—The sharp sunk fillet at the side of a bead.

RIDGE ROLL.—The semicircular top edge of the

ridge piece of a greenhouse, shed, or similar structure, over which the lead is fixed.

ROE.—A figuring, light and dark, found in mahogany and sometimes in birch.

SCOTIA.—A hollowed moulding.

THROATING.—A groove run in a window or other frame to divert water.

TOTE.—The handle of a bench plane. (Sometimes spelt *toat*).

THE THREE PRIZES, each of a Waterman's self-filling pen with pencil to match, in case, have been awarded to:—

HENRY HEARSON, 66, First Avenue, Kidsgrove, Staffs.

W. F. MORRIS, The Leete, Christleton Road, Chester.

HARRY NOBLE, 2, Bywell Road, Dewsbury, Yorks.

Special Mention.—George Cross, C. E. Gadd, R. Headerson, G. Hornsby, C. T. Mecklin, S. J. Mudge, Fred Newton.

Many other competitors sent in replies that were practically correct. In several cases, however, the definitions (written on extra sheets of paper) were needlessly long. A few competitors unwisely omitted to add their names or addresses.

All the prizes were despatched to the successful competitors before Christmas.

STAINED BENCH TOPS.—During thirty years experience in laboratory work I find polished benches are a failure as regards their general appearance. I stained a wooden bench in 1912 and, on visiting the place last week, I find that it is practically as good as the day it was stained. My method of finishing leaves a nice dead black surface which withstands a great amount of rough treatment. The bench I am at present working on is of one inch teak, made and stained in 1920. The same stain answers quite well for soft woods.

Solution No. 1.—Aniline hydrochloride, 100 grammes; ammonium chloride, 40 grammes water, 650 ccm.

Solution No. 2.—Copper sulphate (crystals), 100 grammes; potassium chlorate, 50 grammes; water, 615 ccm. The method of application is as follows:—Apply solution No. 1 with a brush and let it thoroughly dry. Then apply solution No. 2 and allow this to dry. Repeat the application of 1 and 2 for five or six times. Wash off with hot water and soap. Then rub the stained surface sparingly with vaseline or linseed oil. T. READ (Prestwick, Nr. Manchester). (26).

ALL LOVERS OF BEAUTIFUL ILLUSTRATIONS, beautifully reproduced, should see the January issue of *Pictorial Education*. The journal has been enlarged to 32 pages and the pictures are now printed on one side only of the paper. This renders the framing of the pictures a much more economical proposition, as no picture is wasted owing to the fact that it is on the back of another. *Pictorial Education* is published monthly at one shilling, obtainable at all newsagents.

THE FOUR-FOOT-SIX OAK SIDEBOARD

THE trend of present-day taste in furniture style has taken us back to essentials, with a consequent exclusion of all redundant detail and a reliance for success upon good proportion and sound workmanship. This is all as it should be in the highest taste, and those who derive pleasure from the plainer method of treatment may feel interested in the design for a sideboard dealt with here as a subject worthy of their best endeavours in construction.

The wood suggested is solid oak throughout and the detail indicated is intended for this wood. The colour may be kept as near the natural shade as possible, although many prefer the darker nut-brown shade that conveys a greater sense of homeliness and warmth.

In the present case, by way of relief, special handles might be carefully selected, whilst both door panels and drawer fronts might carry an inlaid banding of either walnut or brown mahogany with or without a small device in the centre of doors for a balancing effect. Utility also might be increased by fitting one of the drawers with divisions for the various items of cutlery.

Dimensions for the sideboard are 4 ft. 6 ins. long, 1 ft. 6 ins. wide on carcass and 3 ft. 1 in. high to table top, above which the back rail rises an additional 2 ins.

ENDS.—In selecting the stuff for the ends (A) this should be chosen with an eye to a balanced grain effect when the stuff is jointed up, the glueings being preferably tongued together with hardwood cross-cut tongues. The parts will require slotting for dovetails and mortising for rails as these occur, in addition to which the back edge will be rebated for the carcass back.

THE INNER DIVISIONS (B) will be tenoned right through carcass bottom (or dowelled, if this is preferred) and also through the bearer rails (D) above front and back. These divisions may be made up of $\frac{7}{8}$ in. thickness, the glueings tongued together with the grain running horizontally throughout. Or the parts may be made up by clamping horizontal grain with a $\frac{1}{2}$ in. clamp, each end tongued together; or again, the divisions can be framed up with panels grooved in and both front and back stiles dowelled into position top and bottom. The parts will require mortising

for pair tenons on bearer rails under second and third drawers.

THE TOP RAILS (C) will be dovetailed to ends and are also stiffened by triangular braces in the angles, dovetailed in; they are also mortised front and back in centre.

The upper bearer rail (D) is shown as tenoned into position, and will be grooved on the inner edge to receive a tongue on runners and a $\frac{1}{4}$ in. or plywood dustboard. This rail also carries four mortises for the lower divisions and a single mortise right through for upper centre division to enter.

The division between upper drawers (E) can be made up of an upright of equal width with the bearer rails and have a continuation piece to carry the same height right through, a similar upright being tongued on at back to complete the part.

THE RUNNERS (F), of which six will be required, are grooved into position and tongued into bearers, the dustboards being pushed home from the back.

In the best way a corresponding rail to the bearer will be pushed home with a tongue to enter the groove in runners at back. This will make the stiffer job, but the back rails are frequently omitted in ordinary construction. A centre runner (G), somewhat wider, will also be required under the division between upper drawers, the part being tongued into position front and back and also screwed up to the continuation piece from under.

THE CARCASS BOTTOM (H) will be dovetailed to outer ends and mortised for the inner divisions right through and the joints wedged. The bottom is also cut back to the thickness of the doors at ends so that all may close in flush.

THE DRAWERS should not be put in hand till the casings for them are ready and the fit should be glove-tight without play for the fronts. They will be dovetailed together and the bottoms grooved in.

THE DOORS (M) are framed up of stiles and rails mortised and tenoned together and rebated for panels to be beaded in from the back.

THE BACK (N) is put together to form three panels, the inner stiles being fitted to centre behind the divisions (B). The back will be mortised and tenoned together and the joints pegged.

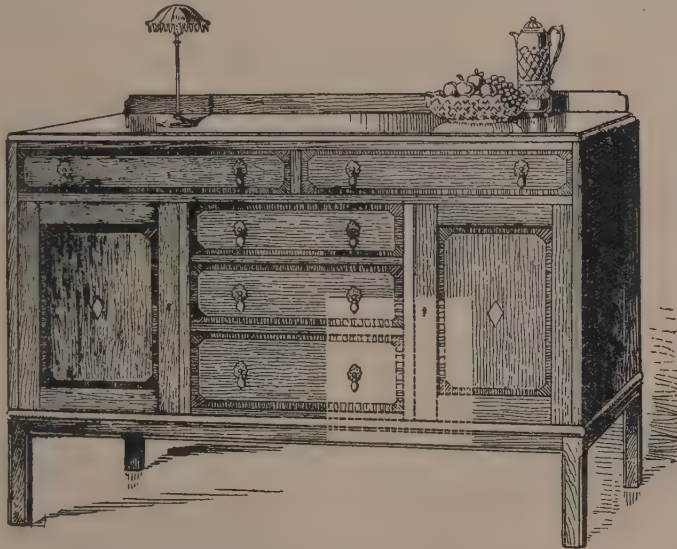


FIG. 1. OAK SIDEBOARD, 4 FT. 6 INS. LONG; 3 FT. 1 IN. HIGH.

OAK SIDEBOARD, 4 FT. 6 INS.

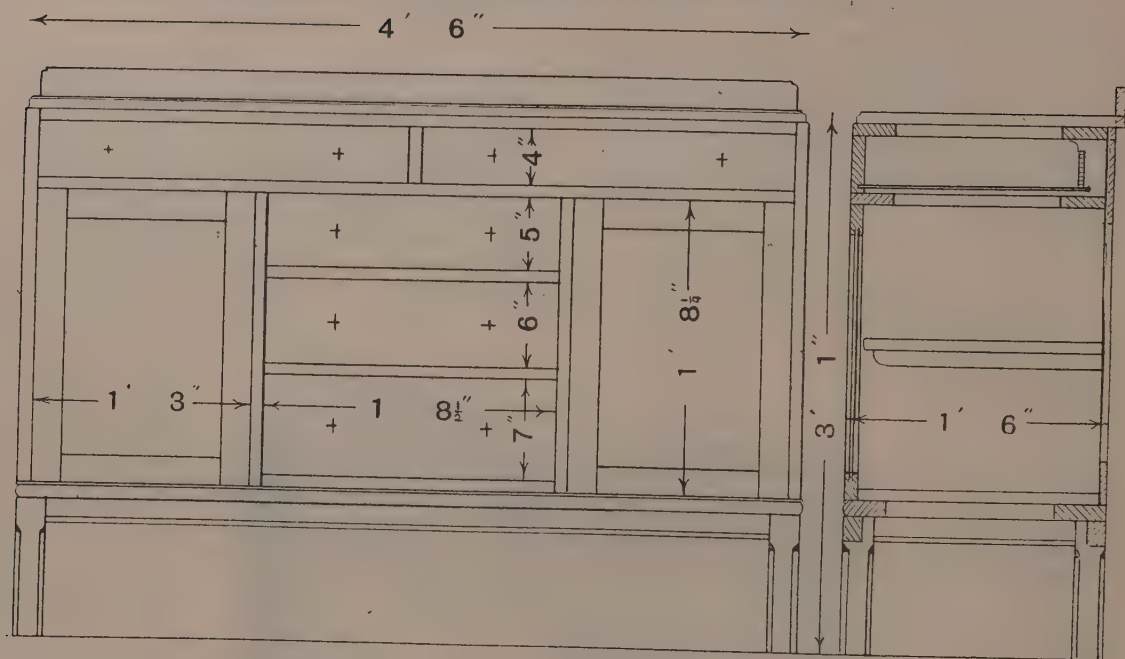


FIG. 2. DIMENSIONED FRONT ELEVATION, WITH SCALE.

FIG. 3. END SECTION.

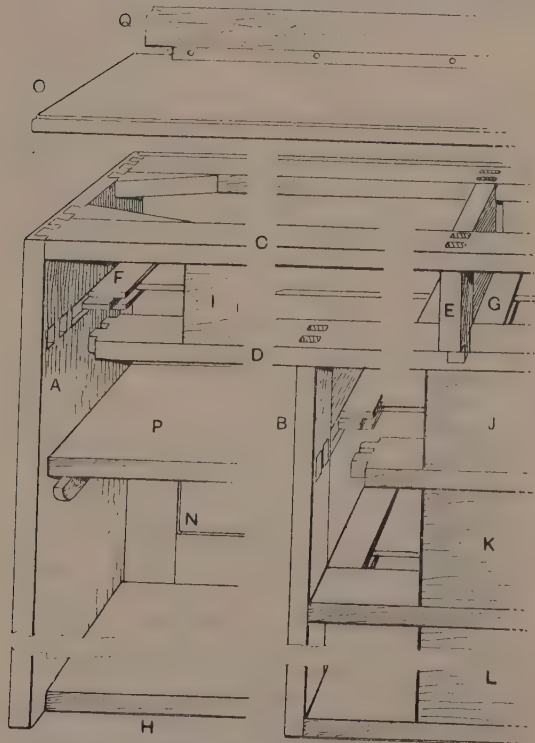


FIG. 4. SHOWING THE CONSTRUCTION.

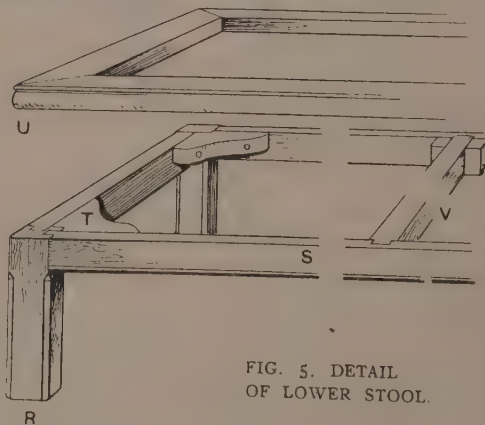
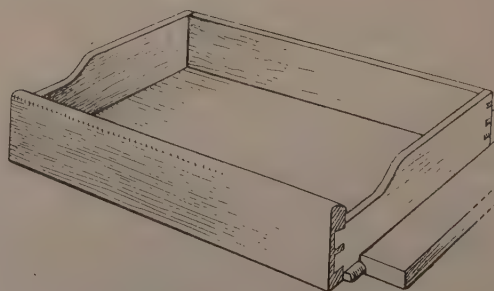
FIG. 5. DETAIL
OF LOWER STOOL.

FIG. 6. DETAIL OF TRAY OR CELLARETTE.



FIG. 7. TYPE OF MODERN HANDLE.

with panels of $\frac{3}{4}$ in. thickness or 5 mm. plywood grooved in.

THE TOP (O) is neatly moulded and finished so that it recedes a full $\frac{1}{4}$ in. from front and end edges of carcase; the part is, however, kept sufficiently wide to ledge over the carcase back to the thickness of the upper back rail. It will be fixed by screwing through rails and ends.

The interior of cupboard is indicated as fitted with a shelf on fillets screwed to the ends. This will usually serve all ordinary purposes, but many prefer to fit one or two plate trays, or a cellarette, the former being lined with baize and the latter covered inside with lead foil.

Detail is offered (Fig. 6) for the putting together of a tray or cellarette, and it will be noted as necessary to block these out from the ends sufficiently to clear the door when opened for sliding purposes.

The top back rail (Q) will be cut in flush at back of top and screwed as indicated.

THE STOOL LEGS (R) have each corner cut back and chamfered $\frac{3}{4}$ in. wide, starting immediately below the lower edge of the framing. The front and back rails (S) will be dovetailed into position in legs so that they finish flush on face and have the lower edge chamfered $\frac{3}{4}$ in. cut to butt up to leg. The end rails are also dovetailed to legs and chamfered to agree, and the parts stiffened throughout by angle braces (T) fitted and screwed into position in a similar manner to those on a dining room chair. A centre stretcher (V) should also be fitted, the part being either dovetailed into position (which is preferable) or merely housed into rails front and back and glue-blocked, both methods being indicated.

The mould (U) immediately above this stool is cut with a $\frac{1}{4}$ in. bead to finish flush with upper carcase, below which the remainder of the $1\frac{1}{4}$ in. thickness is pared to form a roll member. The rails should be mitred and tongued together when assembling the parts and will be screwed into position above and below.

A sketch is included (Fig. 7) of a drawer handle which will serve as an indication of a type of mount which will prove effective. Most good class metal furnishers offer a selection of neat designs in pierced brass, note being made that the piercing itself forms a refined embellishment to plain oak and leaves little to be desired in this respect. A good quality handle only should be selected, with bolt to pass right through the drawer front and be nutted behind. Either satin or antique finish will be suitable, or the mounts may be nickel plated. Nowadays, too, in the endeavour to achieve a special effect in a refined manner, composition handles in various colours are obtainable for furniture, and

should the worker have any inclination in this way he will appreciate the pleasing result obtainable by mounting jade green handles on a light shade of oak.

THE CUTTING LIST is as follows:—

		Long. ft. ins.	Wide. ins.	Thick. ins.
A	Two ends	2 3	18	$\frac{3}{4}$
B	Two divisions	1 10	18	$\frac{3}{4}$
C	Two top rails	4 6	3	$\frac{3}{4}$
D	Two bearer rails	4 6	3	$\frac{3}{4}$
E	One drawer division	0 6	3	$\frac{3}{4}$ or $\frac{1}{2}$
	One continuation piece	1 4	4	$\frac{3}{4}$ or $\frac{1}{2}$
F	Six runners	1 4	2	$\frac{3}{4}$
G	One centre runner	1 4	4	$\frac{3}{4}$
H	One bottom	4 6	18	$\frac{3}{4}$
I	Two drawer fronts to fit	2 3	4	$\frac{3}{4}$
	Four sides	1 6	4	$\frac{3}{4}$
	Two backs	2 3	4	$\frac{3}{4}$
	Two bottoms	2 3	16	$\frac{3}{4}$
	Two muntins	1 6	2 $\frac{1}{2}$	$\frac{3}{4}$
J	One drawer front	1 9	5	$\frac{3}{4}$
	Two sides	1 6	5	$\frac{3}{4}$
	One back	1 9	5	$\frac{3}{4}$
	One bottom	1 9	18	$\frac{3}{4}$
K	One drawer front	1 9	6	$\frac{3}{4}$
	Two sides	1 6	6	$\frac{3}{4}$
	One back	1 9	6	$\frac{3}{4}$
	One bottom	1 9	18	$\frac{3}{4}$
L	One drawer front	1 9	7	$\frac{3}{4}$
	Two sides	1 6	7	$\frac{3}{4}$
	One back	1 9	7	$\frac{3}{4}$
	One bottom	1 9	18	$\frac{3}{4}$
	plywood bottoms if preferred.			
M	Four door stiles	1 9	2	$\frac{3}{4}$
	Four rails	1 3	2	$\frac{3}{4}$
	Two panels	1 6	12	$\frac{3}{4}$ or 7 mm. ply.
N	Two back stiles	2 3	3	$\frac{3}{4}$
	Two inner stiles	1 6	3	$\frac{3}{4}$
	One top rail	4 6	6 $\frac{1}{2}$	$\frac{3}{4}$
	One bottom rail	4 6	3	$\frac{3}{4}$
	Three panels of $\frac{3}{4}$ in. or 5 mm. plywood to fit.			
O	One table top	4 6	19	$\frac{3}{4}$
	Four bearer rails	1 10	3	$\frac{3}{4}$
P	Two shelves (if required)	1 3	16 $\frac{1}{2}$	$\frac{3}{4}$
	Four fillets	1 4	1 $\frac{1}{2}$	$\frac{3}{4}$
Q	One top back rail	4 6	3	$\frac{3}{4}$
R	Four stool legs	0 10	2	$\frac{3}{4}$
S	Two rails	4 6	1 $\frac{1}{2}$	1 $\frac{1}{2}$
	Two end rails	1 6	1 $\frac{1}{2}$	1 $\frac{1}{2}$
T	Four braces	0 5	5	1 $\frac{1}{2}$
U	Two rails	4 6	3	1 $\frac{1}{2}$
	Two end rails	1 6	3	1 $\frac{1}{2}$
V	One centre stretcher	1 6	1 $\frac{1}{2}$	$\frac{3}{4}$

All lengths are full to allow for paring and fitting. Widths generally and thicknesses are net. (127)

FOR FEBRUARY, special articles in readiness are on the construction of a garage, on the making of Queen Anne bedsteads, etc. Other designs in preparation are on a fireside chair, occasional bookcase, and several articles of light furniture.

THE HANDICRAFT CENTRE

OAK FIRESIDE STOOL

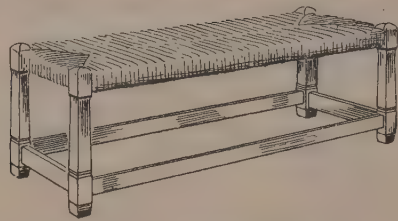


FIG. 1. OAK FIRESIDE STOOL.
LENGTH, 2 FT. 10 INS. WIDTH, 12½ INS.

NOW that the winter evenings are upon us and the fireside will form an attraction, what could be more suitable than a fireside seat or stool? The accompanying drawings and diagrams explain themselves, but additional notes might prove valuable to the amateur woodworker. The stool looks best in oak, though other woods would be suitable.

The cutting list, including allowances, will be:

	Long.	Wide.	Thick.
	ft. ins.	ins.	ins.
Four legs ...	1 1½	2½	2½
Two top rails ...	2 10	2½	1½
Two short top rails ...	1 0	2	1½
Two bracing rails ...	2 10	2	¾
Two bracing rails ...	2 10	2	¾

Having decided on the material, plane all pieces to widths and thicknesses shown on the drawings. Next set out lengths, mortises, etc.

The legs may be shaped separately, but much time and labour will be saved by adopting the method illustrated at Fig. 3. It is advisable to cut a template of the shape of the leg in thin

card or stout paper, this to ensure uniformity of outline.

Having assembled the frame and cleaned up, we are now ready for the stain. Vandyke crystals dissolved in hot water gives quite a good effect, as does brunswick black thinned down with turps; but a spirit stain of Jacobean colour has been found most suitable since the grain is not raised to such an extent as in the two former cases. Should it be decided to fill the grain, one of the regular grain fillers may be used, but a satisfactory filler may be made from whiting, plaster of paris, gold size and turps. A wax finish is in keeping with the general scheme.

Now decide on the type of seat to be used. Two of these are illustrated at Figs. 5 and 6. The material used is either seagrass (costing 1/2 per pound and approximately 3 lbs. will be required), or rush, costing a few pence more. The former is more easily obtainable, though the finished effect is not quite as rich as when rush is used. It is advantageous to pad the seat when either of these methods is adopted.

To produce the seat illustrated at Fig. 5 fix one or two stretching pieces between the long rails of the top frame to prevent the tension put on the seagrass from pulling in the long sides. Next wrap the seagrass the long way of the stool until the whole of the space between the legs is filled. We have now to decide as to the number of strands we are to use in weaving; four will be found to be suitable. Having decided this try to arrange matters so that the number of strands is a multiple of four in order that the woven pattern will be uniformly a series of squares.

Then procure two strips of three-ply, approximately 15 ins. x ½ in. Thread one piece under four strands and over four strands and continue

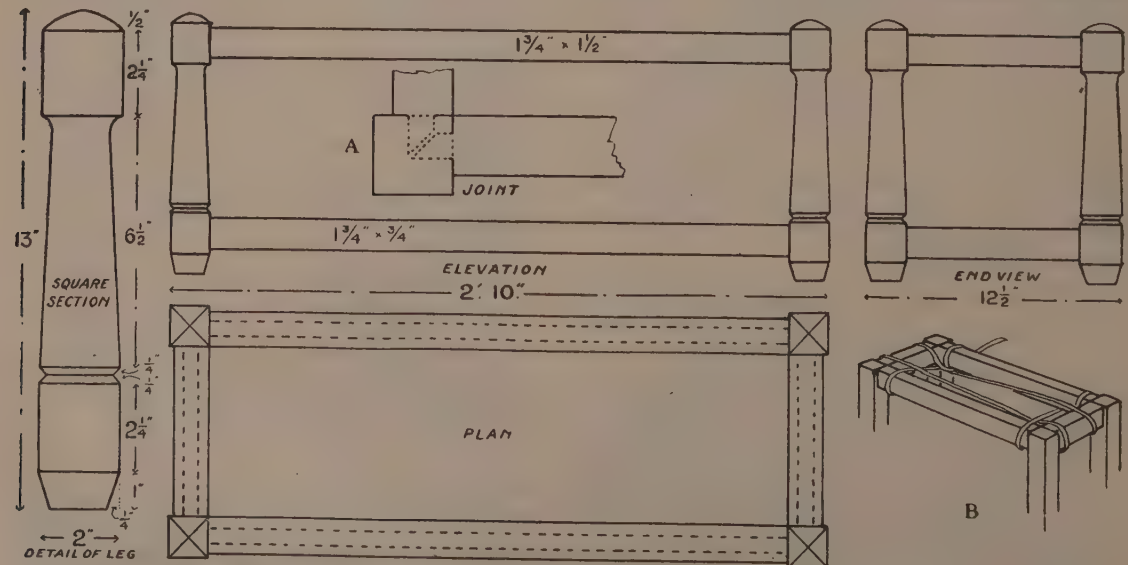


FIG. 2. ELEVATIONS, PLAN, DETAIL OF LEG, AND (B) DETAIL OF RUSH WEAVING.

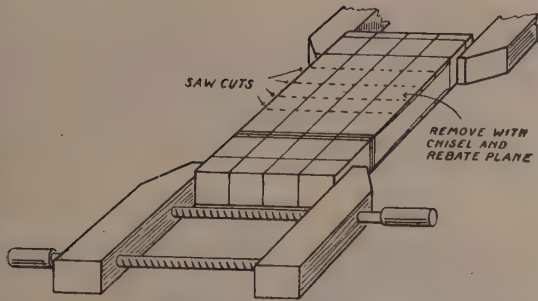


FIG. 3. METHOD OF SETTING OUT LEGS.

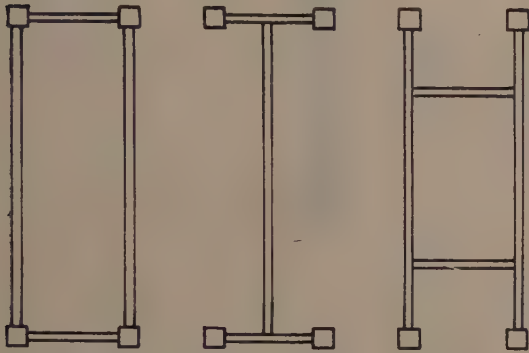


FIG. 4. ALTERNATIVE STRETCHER TREATMENT.

until the strip projects at the other side of the seat. Repeat this with the other strip, but thread over the first four strands and under the next four strands and continue as before. These strips will facilitate the weaving if they are turned on their edges, thus separating the strands and doing the work of the heddle in weaving. This is illustrated in Fig. 6. The weaving may now be commenced. It will prove rather tedious at first, but as proficiency is reached the work will become more congenial. As the weaving approaches completion the strips will have to be discarded as the strands will have tightened considerably. The writer has found that a needle or bodkin made from a piece of stout wire is most useful here.

To produce the old rush design a different pro-

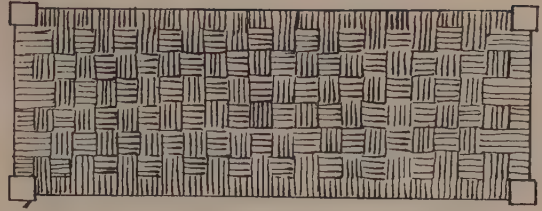


FIG. 5. PLAN OF SEAGRASS SEAT.

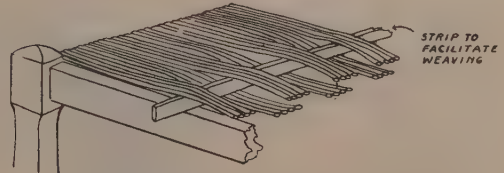


FIG. 6. METHOD OF WEAVING SEAGRASS.

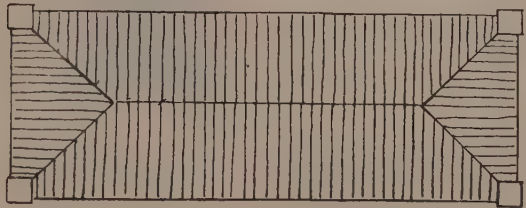


FIG. 7. PLAN OF RUSH SEAT.

cedure is essential. The stiffening pieces suggested in the previous case must be discarded as they would be in the way of the rush.

Commence by tying the seagrass or rush on the back rail at the left hand corner. Bring it forward and over the top of the front rail round to the left under the side rail and round the outside and top of the side rail and proceed as at Fig. 2B.

Both seagrass and rush may be discarded in favour of strips of leather approximately 2 ins. wide, woven under and over alternately. It is advisable to reinforce the leather with webbing as used in upholstery. This is the most expensive of the methods suggested, but the cost may be cut considerably if basil be used instead of calf.

(136)

Staining Red Deal

F. R. (Lowestoft) has made a desk, using red deal for the drawers and the framework and American oak for the top. He intends polishing the top to a light oak finish and asks how to stain the deal portions to match.

REPLY.—You are probably aware that whatever treatment you give the red deal it will never appear like oak. You can, however, slightly tint the timber to a light orange shade so that the colour will not clash with the self-colour oak. Try the following mixture on a

piece of scrap red deal. Mix 3 ozs. yellow ochre in 1 pint hot water and add a tablespoonful of liquid glue. Stain the deal with this mixture and wipe off any surplus colour of "tears" with a soft rag. Leave to dry over night and then ease down the surface with No. 1 grade glasspaper until all is smooth. Coat in the work with brush french polish and again ease down with No. 0 glasspaper. Then carry on the polishing or spirit varnishing until you obtain the desired surface. An easier method would be to obtain some of Stephen's powder stain, say, satinwood and light oak powder.

(117)

THE HANDICRAFT CENTRE

STATIONERY CABINET

THE drawings here illustrate a piece of work which will not only appeal to the general reader, but will be suitable for the advanced student in the Handicraft Room. The sizes of all materials and the general proportions should be followed out in detail as special care has been given to the design of the model.

The material used may be either mahogany or walnut. A scale drawing showing all details of construction and all dimensions should be prepared. Each piece of wood should be planed up carefully to the required sizes.

SETTING OUT, or marking out, is one of the most important stages of any work of the kind and great care must be taken to measure accurately in every case. Take the two end pieces (A) and fasten them so that the face sides and face edges of each come together. This process is known as pairing, and is necessary because there is a right hand and a left hand end. Mark the length and all joints as shown in Fig. 5, also the position of the strips L and M. The bottom (B), shelf (N), and top pieces should now be cramped together, and their lengths marked. The position of the end pieces (A) should now be marked on the bottom and top pieces only. Undo the cramp and mark the stopped housing joints on the piece B. All lines which are to be cut must be marked with a scribing knife and the remaining lines marked in pencil.

CONSTRUCTION.—To cut the stopped trenches in the pieces A and B, first chisel away the shaded portion shown in Fig. 6. Saw down to

the gauge lines and remove waste with a chisel, finishing to the gauge lines with a router. Cut the pieces A, B, C, F and N to length, finishing on a shooting board. Fit all joints and work a chamfer on the pieces B, F and C. Set a cutting gauge and cut rebates for plywood in the end pieces (A).

The rebates in the pieces B and C must be stopped as shown in Fig. 7. Cramp the pieces L and M together, cut to shape, clean up thoroughly and cut each piece to its required length. Treat the pieces G, H and K in a like manner and finish to length on a shooting board.

Each piece should now be cleaned up thoroughly with a finely set smoothing plane, scraper and glasspaper, when the work is ready for gluing up.

GLUEING UP. — Have every thing necessary ready—hot glue, rag and hammer. Sufficient glue should be used, but care taken not to use too much. Coat the ends of the shelf (N) with glue and fit into position. Do likewise with the bottom ends of the pieces A. The joints may be pinned, using $\frac{3}{4}$ in. pins. The top piece (C) is also glued and pinned into position. Fit the back piece (D) into its position. This piece, which has been previously carefully squared, will be the means of keeping the job square. Glue a block (X) at the junction between C and pieces A as shown in Fig. 4; this will give greater strength to the work. Wipe off all surplus glue and allow work to set.

Now take the pieces prepared for the drawer.

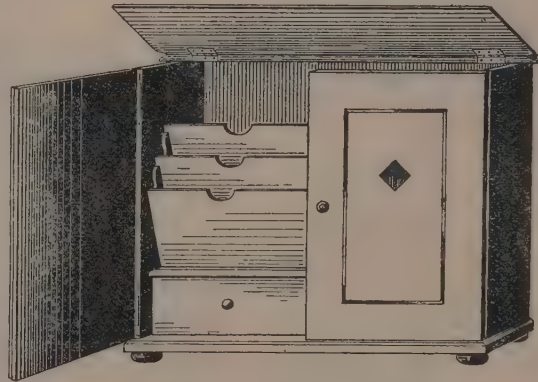


FIG. 1. STATIONERY CABINET WITH DOORS AND HINGED TOP. SIZE, 12 INS. BY 10 INS.

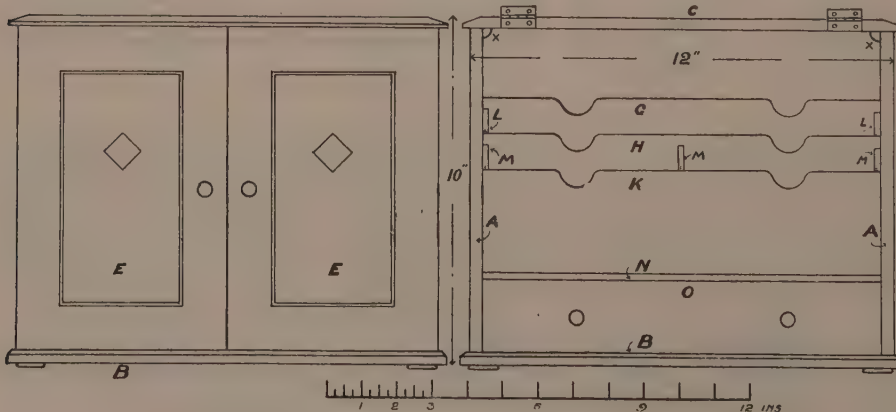


FIG. 2. FRONT ELEVATION.

FIG. 3. INSIDE VIEW.

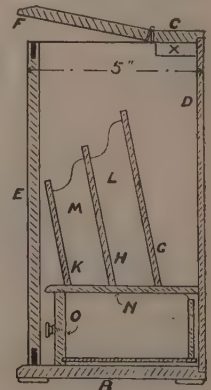


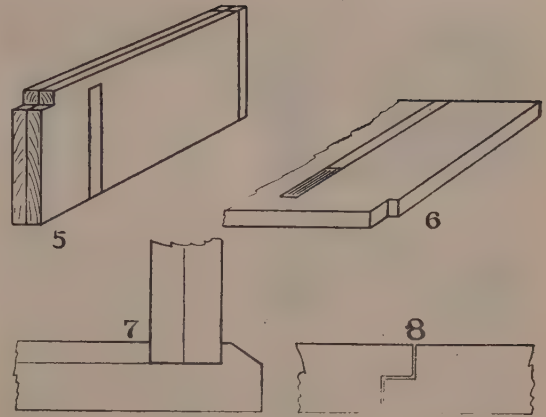
FIG. 4. SECTION.

Fit the front piece into its position. Cut a groove for the bottom along the front and end pieces. The drawer should be rebated together, all joints being glued and nailed. After the glue has set, clean off and fit drawer into its position. The doors should now be fitted, care being taken to match the grain and to make a good joint at the meeting edges. To reduce any tendency of warping cut a groove $\frac{1}{8}$ in. wide and $\frac{3}{8}$ in. deep in the top and bottom of each door and into it fit a strip of hardwood (see section, Fig. 4). Set a cutting gauge to $\frac{1}{8}$ in. and cut a rebate in each door as in Fig. 8. The decoration, if any (say, an inlaid string and a small inlaid diamond as illustrated), should next be carried out, and the doors cleaned off ready for hanging.

TO HANG THE DOORS, set a gauge to the centre of the width of the hinges, and another gauge to slightly less than their thickness. Mark position of hinges on each door, then screw them into position. Place each door in its place, and mark carefully the position of the hinges on the case. Remove doors, square lines on the edges of pieces A, and gauge to width and depth. Cut away the waste parts exactly to the lines and fit and screw hinges into place.

The top (F) is hinged in a different manner, slightly less than half the thickness of hinges being cut out of the pieces F and C. Fit the hinges to the piece F first, then mark their position on piece C, remove the waste, and screw hinges into position.

Glue the four toes into place and then position the door and drawer fittings. Examine the job carefully for any faulty cleaning off, as any defects will be greatly magnified when the work is stained and polished. Stain to the desired shade and then polish, all fittings being removed. The best result on the timber suggested will be obtained by french polishing.



FIGS. 5, 6, 7 AND 8. DETAILS OF CONSTRUCTION.

Sizes of materials :

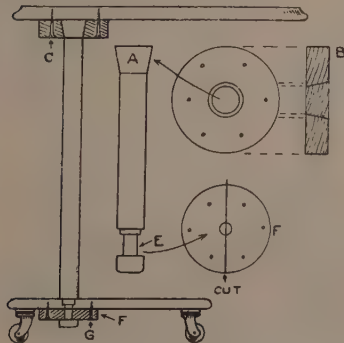
		Long. ft. ins.	Wide. ins.	Thick. ins.
A	2 Ends	0 10	4 $\frac{1}{2}$	$\frac{1}{2}$
B	1 Bottom	1 1	5 $\frac{1}{2}$	$\frac{1}{2}$
C	1 Top	1 1	1 $\frac{1}{2}$	$\frac{1}{2}$
D	1 Back	1 1	10	plywood
E	2 Doors	0 10	6 $\frac{1}{2}$	$\frac{1}{2}$
F	1 Lid	1 1	4 $\frac{1}{2}$	$\frac{1}{2}$
G	1 Partition	1 0	5 $\frac{1}{2}$	$\frac{1}{2}$
H	1 Partition	1 0	4 $\frac{1}{2}$	$\frac{1}{2}$
K	1 Partition	1 0	3 $\frac{1}{2}$	$\frac{1}{2}$
	1 Drawer front	1 0	2 $\frac{1}{2}$	$\frac{1}{2}$
	2 Drawer ends	0 5	2 $\frac{1}{2}$	$\frac{1}{2}$
	1 Drawer back	1 0	1 $\frac{1}{2}$	$\frac{1}{2}$
	1 Drawer bottom	1 0	4 $\frac{1}{2}$	plywood
	5 Strips	0 7	1 $\frac{1}{2}$	$\frac{1}{2}$

Allowances have been made in lengths and widths. (138)

IN MAKING A BED-TABLE I tried to think of two joints which I could make in the course of turning the leg, for fixing same to the top and base. I decided on the following, which proved to be very rigid, and more simple to make on a turned leg than ordinary mortise and tenon; also they

are locked so that it is impossible for them to work loose.

1. TOP.—The leg I turned down leaving the top tapered as at A. I then turned a hole in the centre of a piece of wood also tapered to suit the leg, see B. This piece of wood



FITTING LEG OF BED TABLE.

was then slipped over the leg at the bottom up to the top, where it engaged with the taper of leg, and then screwed from underneath to the table top C. If the taper at the top of the leg is made a little larger in diameter than the hole so that it projects about $\frac{1}{8}$ in. it will be found to be a very tight joint when screwed to the top.

2. BOTTOM.—The leg I first of all turned down at the bottom to enter the base of the table. I then turned a groove in the bottom of the leg as at E, cut a hole in a piece of wood the same diameter as the groove, and cut this piece of wood in halves see F, afterwards slipped the two halves one each side of the leg into the grooves, and screwed same to the base, see G.—A. TRAVIS (Southampton). (103)

TO ACQUIRE fluency in reading French, there is nothing so useful as the weekly paper *La France* (8 pages 2d., from Newsagents, or from Evans Brothers, Ltd., Montague House, Russell Square, London, W.C.1.).

NEWSPAPER AND BOOK STAND

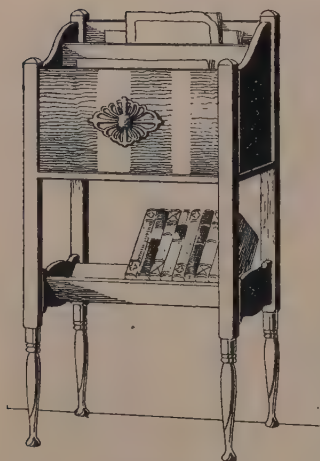


FIG. 1. NEWSPAPER AND BOOK STAND. 36 INS. HIGH, 18 INS. WIDE.

square leg which should taper below the bottom of the news stand, to a plain turned leg

THIS little piece is not expensive to make and would prove its worth in the living room, where it could be used to hold the daily paper, weekly or monthly magazines, and a few library volumes. The legs shown in the drawings are a stock pattern which may be readily obtained from woodworkers' supply stores, but the design allows a wide choice from the ordinary

similar to that shown, or a twist turned leg. The four legs are framed with two ends, front, back and division to form the news stand, and with two ends and two rails to form the book trough. A sketch is given at Fig. 1, elevation and section at Figs. 2 and 3, plans of the news stand and book trough at Figs. 4 and 5 respectively, and working details at Figs. 6, 7, and 8.

THE CUTTING LIST is as follows:—Two back legs (A), 3 ft. long; two front legs (B), 2 ft. 9 ins. long by 1½ ins. square; two ends of news stand (C), 10 ins. long by 11 ins. wide; back (D), 1 ft. 6 ins. long by 11 ins. wide; front (E), 1 ft. 6 ins. long by 8 ins. wide; division (F), 1 ft. 6 ins. long by 9½ ins. wide by ½ in. thick; bottom (G), 1 ft. 6 ins. long by 10 ins. wide by ½ in. thick; two ends of book trough (H), 10 ins. long by 4 ins. wide; two rails (I), 1 ft. 6 ins. long by 4 ins. wide by ½ in. thick, and a fretted ornament about 6 ins. by 4 ins.

CONSTRUCTION.—The ends of the news stand are shaped as at Fig. 6, and the ends of the book trough as at Fig. 7. The legs are taken in pairs, and the ends tenoned into them (Figs. 6 and 8), being kept ¼ in. in from the outer edges of the legs. The front and back of the

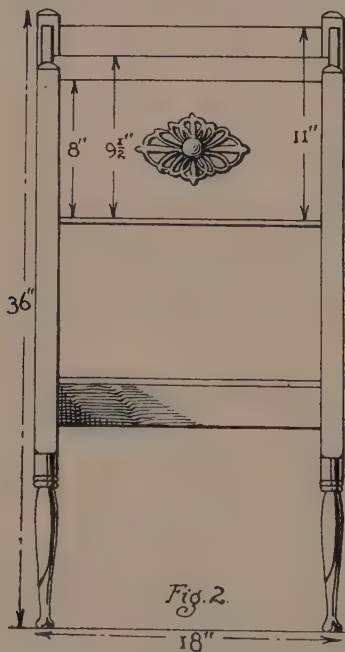


Fig. 2.

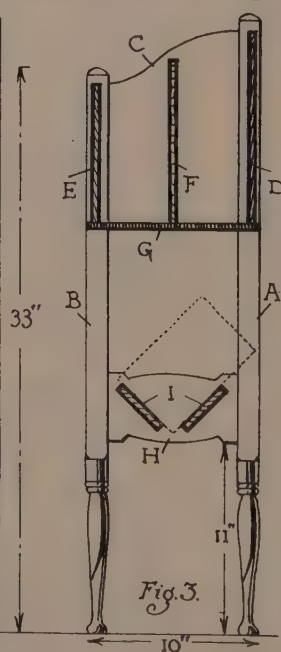


Fig. 3.



Fig. 8.

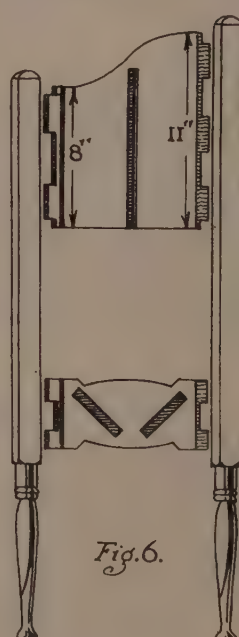


Fig. 6.

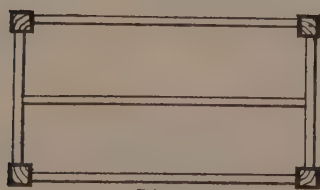


Fig. 4.

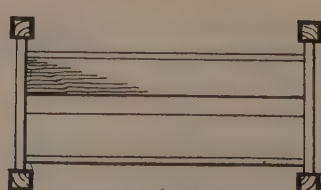


Fig. 5.

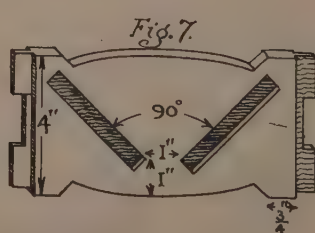


Fig. 7.

FIGS. 2 TO 8. ELEVATIONS, SECTIONS, PLANS AND DETAILS.

news stand are tenoned into the legs and the division is dovetail grooved into the ends, as at Fig. 8. Grooves, $\frac{1}{4}$ in. deep, are cut in the ends of the book trough to receive the rails, details being given at Fig. 7.

When the parts are being fixed together the ends of the news stand and the ends of the book trough are glued into the legs first, and the glue

should be allowed to set. The front and back of the news stand and the rails of the book trough are then fixed, after which the division is driven up into its place, and the bottom fitted over the legs and pinned to the bottom edges of the ends, front, back, and division. The fret is fixed to the front with glue. (131)

ORNAMENTAL HALL RACK

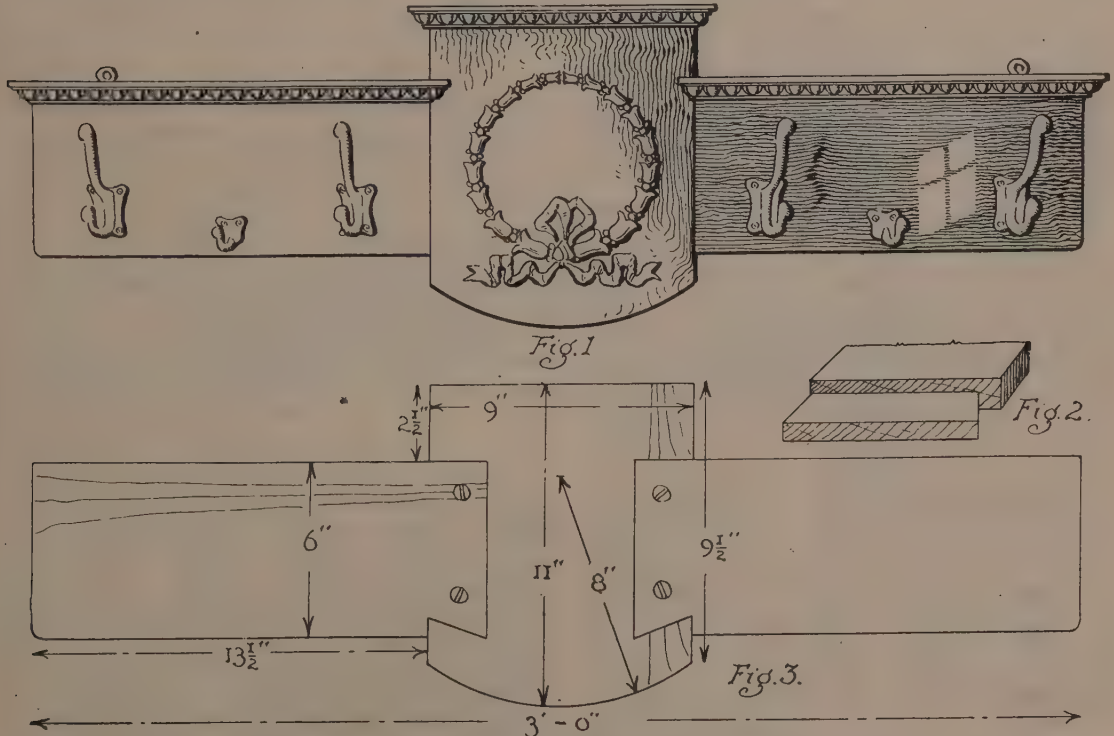
WHEN a rack is being made for the hall it is usually intended to occupy a very conspicuous position and it is well worth while to provide something more ornamental than the usual flat board with a few hooks screwed to it. The rack sketched at Fig. 1 is fitted with four double and two single hooks, and although it is of pleasing appearance it is not costly to make.

One of the better class woods, such as oak, mahogany or walnut, should be used, the rack being framed with a centre piece, 11 ins. long by 9 ins. wide, and two end pieces, $15\frac{1}{2}$ ins. long by 6 ins. wide. Stuff of one thickness could be used for all three pieces, but the appearance would be greatly improved if the centre piece could be $\frac{1}{4}$ in. or $\frac{1}{2}$ in. thicker than the end pieces, for which a thickness of $\frac{1}{4}$ in. or $\frac{1}{2}$ in. would be suitable.

THE CENTRE PIECE is shaped, and the end pieces

are dovetail lapped and screwed to it, as at Figs. 2 and 3. Strips of $\frac{1}{4}$ in. egg-and-tongue embossed moulding are fixed to the top edges, and returned around the ends as at Fig. 1. The carved ornament which is fixed to the centre portion is of a pattern which may be obtained from woodworkers' supply stores, and should measure about 6 ins. by 6 ins. (129)

"DESIGNS FOR MODERN BEDROOM SUITES."—This is an entirely new book. Complete suites, all of compact and modern design are given, the whole range comprising wardrobes, bedsteads, dressing tables, dressing chests, millinery cabinets, chests of drawers, chairs, cheval glass, dressing stool, cupboards, etc. Price 2/6 net. from booksellers and newsagents, or direct from Evans Bros. Ltd., Montague House, Russell Square, London, W.C.1.



ORNAMENTAL HALL STAND: SKETCH, ELEVATION AND DETAIL.

CENTRES OF THE FURNITURE INDUSTRY—BEITH

LIKE his native hills, the Scot aspires to supremacy in many things. He makes iron and steel, and moulds it into infinite forms from ship skeletons to sewing machines. He supplies the world with thread, with linen, jute, hemp and textiles. He is an educationalist, a first rate printer, an enterprising publisher, and has a discriminating knowledge of whiskey. Thus it might be strange to find no Scots interested in the making of furniture.

You will find them in Beith—the most important furniture manufacturing centre in Scotland. Beith itself is a small town of approximately 7,000 inhabitants in the north of Ayrshire, a maritime county famed for its poets, its cattle and its sport.

One learns to connect towns and cities with their products. Beith folk live chiefly by the making of furniture, the lesser industries being leather and netting for fishermen. It is difficult to say why or how furniture-making started in Beith. Timber is sparse in the countryside, and what exists is needed to resist the westerly gales from the sea. There are no hills thickly covered with beech woods as at Wycombe. But, then, why are brushes made at Axminster, biscuits at Reading and chocolate at York? The only explanation seems to be that the individuality of purposeful men will achieve anything.

The purposeful man who made Beith furniture known the world over was Matthew Pollock. Born in Beith in 1833, he served his apprenticeship in his native town. For a time he worked as a journeyman in Glasgow, but at the age of twenty-four he returned to Beith and started business in partnership with his brother John. It was in 1879 that the brothers dissolved partnership and the present works, covering over two acres, were built in 1895 and are known as the Caledonia Works. In 1901 over 250 were employed, and the annual output in chairs alone exceeded

20,000, chiefly for export. The firm is also engaged in shop fitting, panelling and the production of ship furniture.

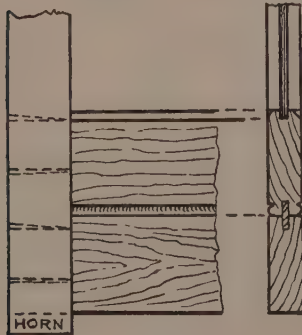
Matthew Pollock was the pioneer of other firms. The West of Scotland Manufacturing Company started business in 1864 and moved to the present premises in 1874. Then there is Stevenston and Higgins, Janefield, for dining and bedroom suites, McNeil Bros., Ayrshire Cabinet Works, chiefly engaged in chair making, and also Gillespie and Sons. For general upholstery one could learn much from a visit to the works of W. C. Wilson.

Beith stands on a hillside facing the western coastal hills and in the valley between is Kilbirnie and its loch. Machinery is now electrically driven, for Ayrshire can boast of having the best and cheapest electrical system in the country. Outlying farmsteads are connected for lighting and power.

Twelve miles away over Misty Law is the Firth of Clyde, the highway of ships to the uttermost parts of the earth. Timber borne up to the docks at Glasgow and conveyed to Beith passes out on the return journey transformed into furniture.

Considering the length of time required for a tree to reach maturity and the labour of trimming and transporting when felled, it behoves furniture designers and makers to treat wood carefully and shape it into beautiful things. A finely figured panel is the biography of a noble tree and commands respect. Scottish manufacturers are appreciating this more than ever with the rising price of timber. Beith as a furniture centre is holding its place, and whether in single expensive pieces or in mass production, Scottish manufacturers are realising that excellence in art or craft lies in the fitness of any object for its purpose. (59)

A DOORMAKING HINT.—Here is a useful hint when making up doors. I have had a lot of trouble in securing good wide timber which is free from sap, shakes and knots, such as is used for the bottom rails of French casements, the thickness of which is from 1½ in. to 2 ins. I



DOORMAKING HINT

have found it much cheaper and I have obtained better quality timber by purchasing stuff 6 or 7 ins. wide. I joint the bottom rail of my doors with tongue laths to obtain the necessary width, in my case 12 ins. I work a ½ in. or a ¾ in. bead on the top portion of the

rail at each side. This leaves the bottom piece say, ½ in. wider than the top piece, but by the time the door has been fitted and eased you cannot discern the difference in the width of the two pieces. By making the rails out of two pieces of narrow stuff the shrinkage is reduced to a minimum. The position of the tenons is also indicated in my sketch.—A. H. PRISSICK (Hull). (133)

"DINING ROOM FURNITURE DESIGNS"—an entirely new edition. The designs selected are all modern in character the items including two complete suites, and there is an excellent range of draw-extension tables in different styles. Five sideboards of varied character are dealt with in detail, and other items include single chairs and arm chairs, fireside chair, lounge easy chair, settee, bureau bookcase, trestle dining table, cabinet for china, cutlery and silverware, etc. Scale drawings, cutting lists and full directions are given. (Price 2/6 net.) Evans Bros. Ltd., Montague House, Russell Square, London, W.C.1.

THE WOODWORKER

VOLUME XXXIV.

FEBRUARY, 1930.

NO. 435.

BUILT-IN FURNITURE

2.—DINING ROOM OR LIVING ROOM

IN Fig. 1 we see how advantageously the larger and more important pieces of wall furniture, the sideboard and bureau bookcase, can be fitted into the fireplace recesses. This leaves the whole of the remainder of wall space clear for any other items that may be required. If de-

sired, a window seat could be built in, and possibly a corner cupboard in the other clear corner. Those who have no separate drawing room will find the vacant wall space particularly useful for piano, wireless cabinet, or gramophone. The room we illustrate is the typical small house size of 16 ft. by 12 ft. It is a simple matter to adapt the accompanying diagrams to suit any other size.

Elevations and plans are in Fig. 2. The recesses are 12 ins. deep, obviously too shallow for either sideboard or bureau, especially as drawers are fitted to both. To provide against this the carcasses are built out to a total depth of about 20 ins. This is unnecessary for the china cabinet and bookcase which can set back about $\frac{1}{2}$ in. from the chimney breast. The style is modern. All top mouldings recede, and the doors of the sideboard pass in front of the bottom

rail. They run the full width between the legs, the sub-divided effect being obtained by fixing carved or embossed mouldings down the centre of each and arranging a slight break in the centre at the bottom. There is no visible division between the drawers. It is set back behind the

fronts, the last named being arranged as shown in Fig. 5. These, of course, are features peculiar to the design, and are not consequent upon the fact that the furniture is built in.

THE SIDEBOARD.—The reader is advised to study the constructional diagram (Fig. 4) in conjunction with the plan in Fig. 2. Notice that at the left the leg overlaps the breast so that the top side rail which is flush with the inner surface of the leg

lies flat against the break of the breast. The right-hand leg stands away from the wall about 1 in. to clear the skirting. A scribing piece is fixed to it to keep out the dust, as shown in Fig. 4. There is no need for the back posts to stand in because they do not run down to the floor but terminate just below the bottom rails. To fill in the gap formed by the increased depth of the job, a $\frac{1}{2}$ in. panel is fixed



FIG. 1. MODERN LIVING ROOM, WITH BUILT-IN SIDE BOARD AND BUREAU.

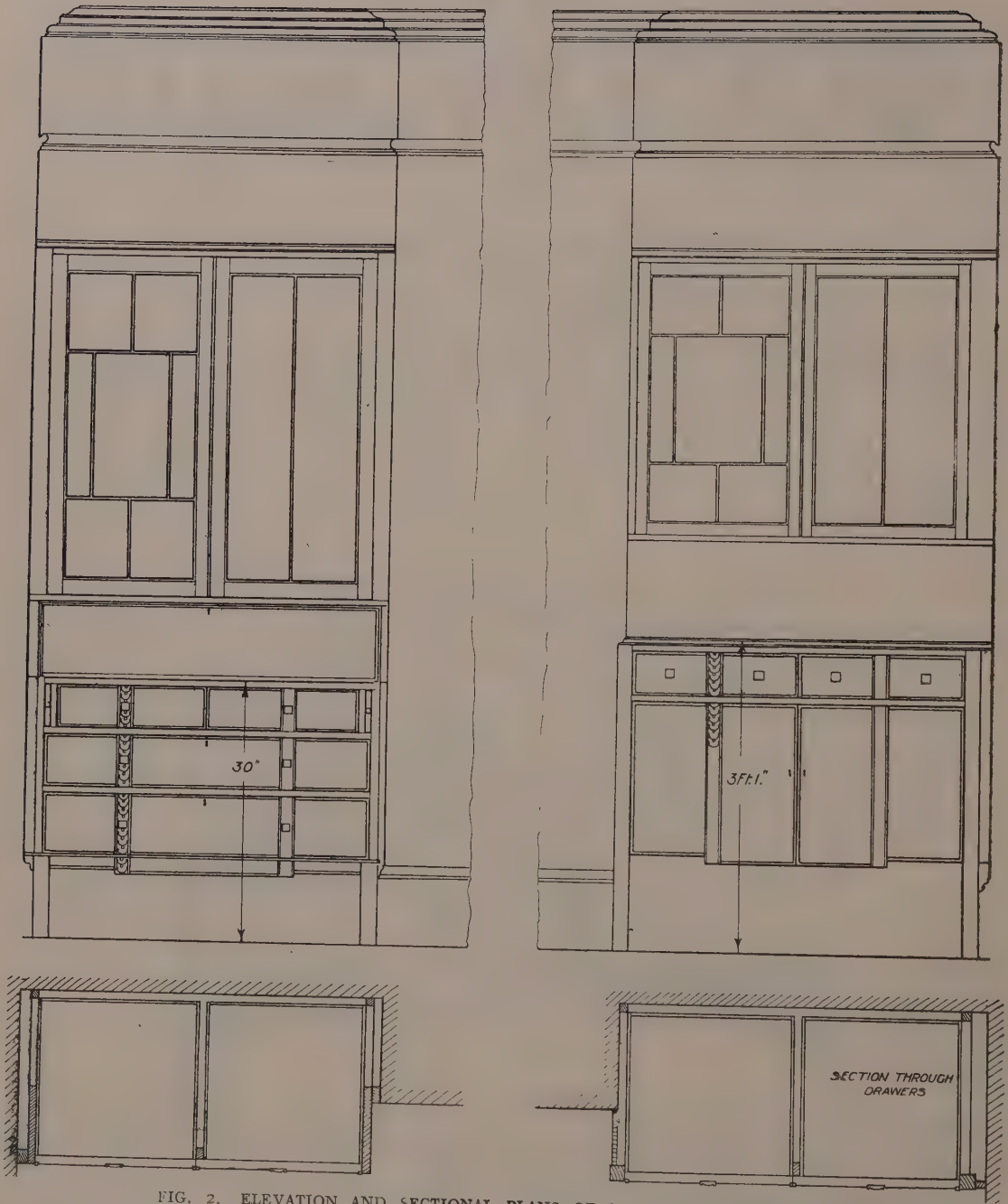


FIG. 2. ELEVATION AND SECTIONAL PLANS OF THE FITTED RECESSES.

behind the left-hand leg, as in Fig. 4. This really acts as a scribing piece.

Mark out the legs as in an ordinary job. The marks can be squared across the back posts at the same time. The two lower rails at the front are tenoned in, that at the bottom being recessed by the thickness of the doors. Dovetail joints

are used for the top rail and these should be cut after the side frames have been put together, because auxiliary dovetails are provided to fix into the side rails. As already mentioned, the drawer division lies back so that the fronts stand in front of it. It must also be to the right of the centre line as in Fig. 5. This allows the

left-hand drawer to have ordinary dovetails, whilst the inner side of the right hand drawer has a long barefaced dovetail passing *across* the front. Tenon in all other rails and work grooves along the runners to hold dustboards. The bottom rests upon the bottom rails at front and sides, and a fillet is provided at the back to support it.

When the carcase is together it can be fixed in position. The right hand scribing piece should be a trifle full so that it can be trimmed down to make a close fit. Screws driven upwards through the rails hold the top. Figs. 6 and 7 show how the doors are made. Ordinary square frames finishing about $\frac{1}{4}$ in. thick are made up, and veneered plywood panels glued on the face. The bottom rails are stepped as shown. The centre upright is required partly to hold the carved moulding and to provide a fixing for the plywood. It should be considerably wider than the moulding so that there is sufficient overlap for the plywood. Fig. 7 shows the section of

the surrounding moulding. It is mitred at the corners and butts against the carved mould. Erinoid handles fixed in front of small squares of wood are recommended.

THE CHINA CABINET.—The main framework for this is given in Fig. 8. It is necessary to make the right hand upright wider than the other so that the centre of the doors lines up with the centre of the job below. Fix the top rail to the uprights with dovetails first, leaving the lower ends free. Secure this framework to the walls, and fix battens at top and bottom. The bottom can then be screwed up underneath. Mount the cornice moulding and nail a plywood top over this. It is advisable to arrange the battens level with the top of the moulding so that there is a suitable fixing. An additional batten at the back is advisable so that the cabinet is dustproof. There is no special point about the doors. They are ordinary moulded frames with rebates for the glass and with bars. A simpler alternative pattern is given to the right in Fig. 2.

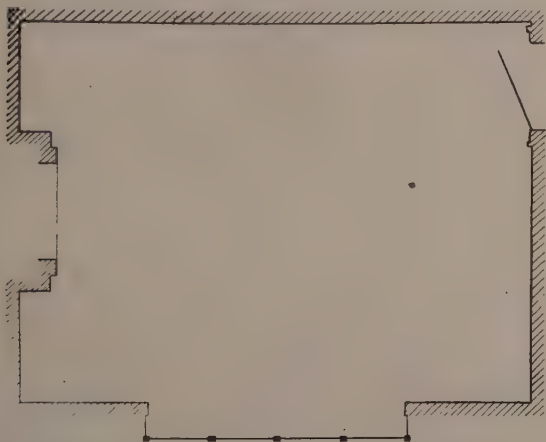


FIG. 3. OUTLINE PLAN OF LIVING ROOM.

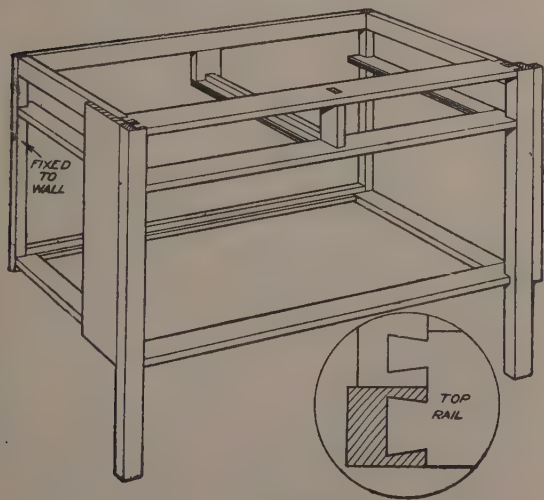


FIG. 4. SKETCH OF THE SIDEBORD CARCASE.

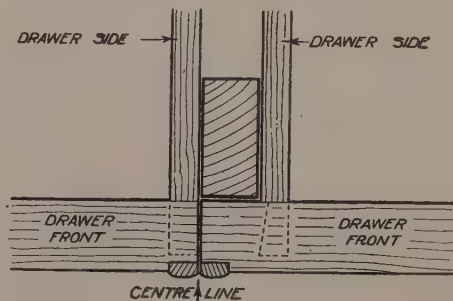


FIG. 5. DETAIL OF SIDEBORD DRAWER.

FIG. 6.
SKETCH
SHOWING
HOW THE
DOORS
ARE
MADE.

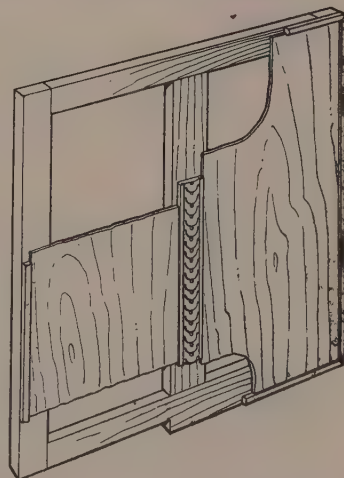


FIG. 7.
SECTION
THROUGH
DOOR
RAIL.



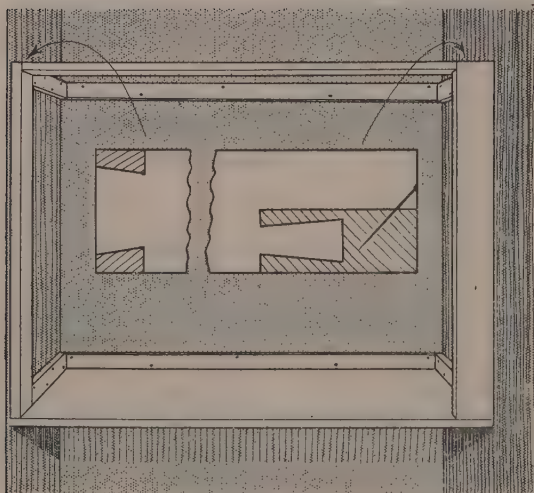


FIG. 8. FRAMEWORK OF CHINA CABINET.

THE BUREAU.—Both ends of this stand in about 1 in., the spaces being filled in with packing pieces (Fig. 9). It will be seen that the carcase is really in the form of a shallow bureau with solid ends, with a framework added at the back, as it were. The drawer rails are stub-tenoned in, except that at the bottom which is dovetailed. This last mentioned rail stands in by the thickness of the drawer front which comes in front of it. Although the writing top is solid it is advisable to make it in two pieces, that at the back being of deal. The small drawer division is set back and to one side in the same way as that in the sideboard.

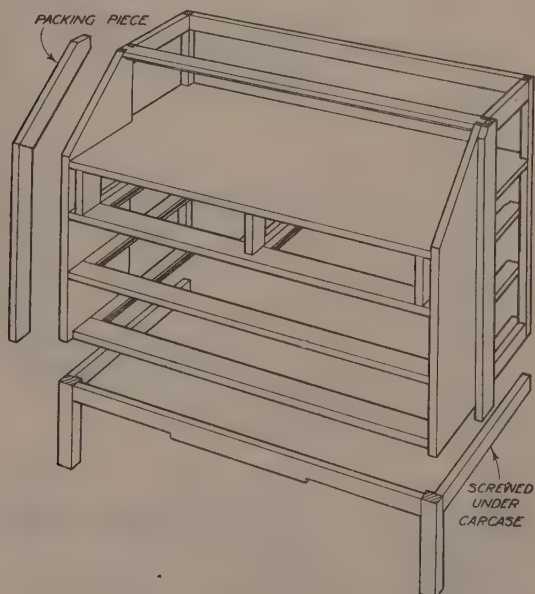


FIG. 9. SKETCH OF THE BUREAU CARCASE.

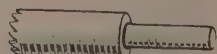
Two back posts are provided and into these are tenoned the side and back rails. At the front, the side rails are tenoned into the back edges of the bureau ends. The top, which acts also as the bottom of the bookcase, is fixed after the job is in position. All runners and dust-boards must be added beforehand. Make up the stand separately as in Fig. 9, and screw it beneath the carcase. There is no need for back legs. To make sure that the packing pieces are the right thickness, offer the job up in position and try them. They should be just hand tight. They are screwed on immediately before the final fixing.

There is only one unusual point about the drawer construction. The front of the bottom drawer being in front of the bottom rail, the sides must stand up by the thickness of the rail. The notes already given about the drawers of the sideboard apply equally to the small drawers in the bureau. It is obviously necessary for the carved moulding to be in a straight vertical line. To effect this, all drawers should be fitted and pencil lines drawn across the whole whilst they are in position. No special design is given for the stationery nest. The reader can make it to suit his own requirements.

THE BOOKCASE.—This is almost identical with the china cabinet, except that it rests upon the bureau top, and the uprights of the frame are equal. (158)

THE 1929 WOODWORKER Volume contains designs (with full directions and cutting lists) for two complete bedroom suites, also for a living room or dining room suite. There is an exhaustive series of twelve articles on Everyday Joins, and another series on Practical Veneering. The general designs cover items of living room, drawing room, library, hall, bedroom, kitchen and scullery items, and among the features are many articles on outdoor woodwork and garden furniture. The instructive articles include craft problems, tool manipulation, polishing, household repairs, timber notes, etc. Price, with complete index, 6s. 6d. net. Evan Brothers Ltd., Montague House, Russell Square, London, W.C.1.

TO EXTRACT A BROKEN SCREW.—Some time ago I had a repair which necessitated the extraction of a broken screw. To do this I made a tool which is more or less original and quite simple. I took a piece of gas piping about 4 ins. in length and about 1/2 in. in diameter, and inserted into one end a piece of metal rod which was a tight driving fit. At the other end of the pipe I filed teeth as in sketch. This tool, used as a drill, cuts or scrapes away the wood around the screw. The screw of course goes up the inside of the pipe and acts as a centre during the rotation of the improvised drill.—CHARLES M. HUNTER (Leicester). (155)



CHIPS FROM THE CHISEL

THE ITALIAN ART EXHIBITION

THE third great art exhibition to be held in London during the past few years promises to be an even greater popular success than the Flemish and Dutch Exhibitions held previously. At the end of the first week of the Flemish Exhibition the turnstiles at Burlington House registered 17,000 visitors; at the end of the first week of the Dutch Exhibition, 23,000, and after one week of the Italian Exhibition the figures were announced as 40,000. At a private view given to members of the National Art Collections' Fund before the opening day, the crush was so great that the wide main staircase of Burlington House was one solid mass of people, while the crowd in the galleries was every whit as numerous as on a public opening day.

* * * *

Italian art is big enough to hold something in it for everybody, but to the craftsman it has its own particular appeal. It is always interesting to see how the other man learns to manipulate his tools and his material, and how he conquers step by step the difficulties of his craft. This is exactly what we do see with the Italian painters, and because they were not only craftsmen but many of them great artists as well, they produce beauty at every step of the way. The walls at Burlington House seem positively to flower with beauty, and it is rare to the eyes with its glowing gold and rich, exuberant colours.

* * * *

Wandering about the first gallery round which are hung the primitive painters, the Siennese mainly and Giotto, I was struck by the close interest being taken in these early pictures by all sorts and conditions of people. It was just the same at the Flemish Exhibition: the real crowds stayed in front of the primitives, poring over the jewelled surfaces of the paint, the intricate detail, as if they could never have enough—and this although the perspective and drawing often looked strange to modern eyes. These early painters knew how to tell a story; that is one part of their charm, and another is the greatness of their conception of the story. When in that first room at the Academy we linger over the small panels of the Siennese, Duccio and Simone Martini, it is to come into direct contact with a power of dramatic expression and depth of feeling in the tiny protagonists of the picture which are most stimulating. We begin to forget that their feet tread the ground as if the little bodies had no weight, that indeed under the hanging draperies there is scarcely an indication of a solid body at all. We are taken into a world of the artist's own contriving—and it is a luminous one, full of the spirit of their own hill town, Siena, which produced one of the world's great mystics, St. Catherine, and a race of painters who were mystics too. And how they could paint! The more you look into these small panels the more you will see it. They have used every artistic device of space, composition and line to heighten and develop their story, till in Simone

Martini you get a use of line that is so masterly and melodic that he has been called the painter of the "singing line."

* * * *

In the same room we get another master of linear art, Giotto. His is a line which moulds and makes rather than sings, and with him we are at the first dawn of that Renaissance art which, later, under the influence of Florentine science and knowledge, was to produce as its crown and achievement Michael Angelo, Leonardo da Vinci, Raphael, Titian—a generation of giants. Giotto's work is not seen at its best at the Exhibition, for much of it is in fresco, painted on the walls of the church of St. Francis at Assisi, and it is to the little hill town in Umbria, the home town of St. Francis, that we must go to see Giotto at his best.

* * * *

The artist of line which is both significant and decorative, that is to say a line which both moulds and makes in itself a pleasing, decorative pattern in the picture, is Botticelli, and there are some fine things by him at the Exhibition, including the famous *Birth of Venus*, known the world over from reproductions. With Botticelli we have arrived at Florence, and are in the very storm-centre of that struggle of the fifteenth century craftsmen to achieve realism and a sense of plastic values which at times threatened to overload art with science. Botticelli's own delicate, mourning conceptions seem sufficiently remote from science, but not so Antonio Pollaiuolo who, with his brother, pursued the study of movement in art with the same intense pre-occupation that old Uccello gave to perspective. In the small *Hercules Slaying the Hydra* on one of the centre stands in Gallery III we see how supremely Pollaiuolo expressed himself in movement, the muscles of Hercules rippling under the taut skin, the sense of strain and the downward sweep of his arm being felt and expressed with tremendous vigour.

* * * *

This room has been filled with the choicest things of the Exhibition and it shows the culmination of Renaissance art. One could stay for hours here making a study of craft alone and learning much. Here is Mantegna, who followed the antique with Renaissance vision and gives a marvellous display of Renaissance science in his foreshortened study of the dead Christ. There is a Crivelli Madonna of unexpected tenderness and a *Flagellation* by Piero della Francesca that is a fine example of this painter's impersonal, unemotional but powerful art. Compare any of these pictures with the old Siennese masters and we see how far the craft work has advanced in these bodies so fully realised and depicted that they are almost sculpturesque. If, however, we want to find a painter who combines those early great spiritual conceptions with the new knowledge we have to turn to Giovanni Bellini. To

my mind his *Transfiguration*, in its noble serenity and dignity, is the greatest thing in the whole Exhibition, his *Pieta* the most moving.

* * * * *

In this room is Raphael, in whom the school of Umbria finds its chief glory, and here are the Venetians with several examples of the now rare Giorgione, whose delight in the sensuous texture of paint and glowing colour was the inspiration of the Venetian group of painters, leading up to Titian. It is impossible to enumerate all the good things. Everything is worth study. Only Michael Angelo and Leonardo da Vinci, of the great painters, are missing, owing to difficulties in transporting their works to England, but draw-

ings and studies by both of them are to be found in the two rooms that are devoted to drawings.

* * * * *

It is in these two last rooms I would finally leave my readers, amongst the evidences of the workshop. This is the most personal part of the Exhibition. In these brief sketches the artists are "trying out" their effects, studying the folds of a dress, the turn of a head, the play of a muscle. They are craftsmen at work, learning, observing, experimenting, and to watch them closely is to experience to the full that sense of stimulation and of re-creation which is the Italian artists' great gift to us. (167)

CHILD'S FOLDING COT



leg, as at Figs. 3 and 8, and the holes are continued through the blocks.

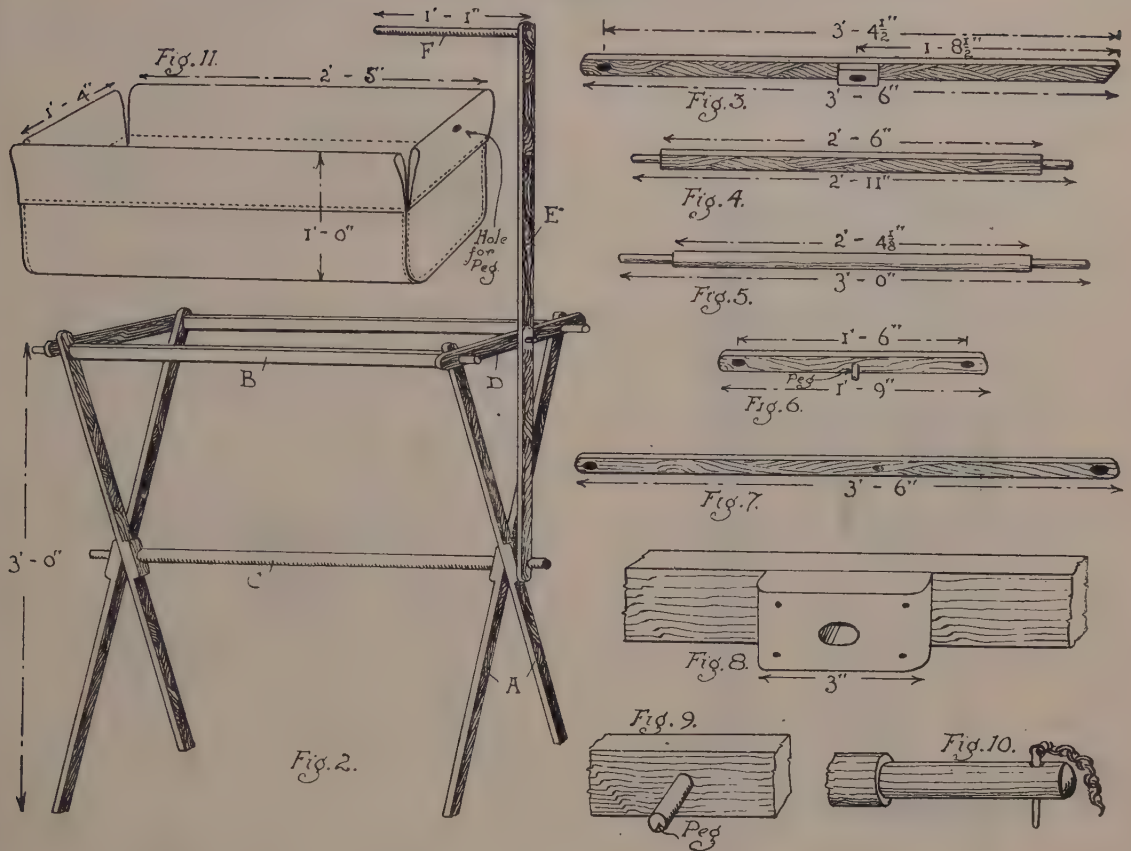
THE TWO TOP RAILS (B, Fig. 4) are 2 ft. 11 ins. long by $1\frac{1}{4}$ in. wide, and the ends are shouldered down to $\frac{3}{8}$ in. diameter for a length of $2\frac{1}{4}$ ins. The centre rail (C, Fig. 5) is 3 ft. long by 1 in. diameter, with the ends shouldered down to $\frac{3}{8}$ in. diameter for a length of 4 ins. The two end rails (D, Fig. 6) are 1 ft. 9 ins. long by $1\frac{1}{4}$ ins. wide, and $\frac{3}{8}$ in. holes are bored in the ends. A peg, formed by running in a stout wood screw and cutting off the head, is fitted in the centre of one of these rails as shown at Figs. 6 and 9. The canopy upright (E, Fig. 7) is 3 ft. 6 ins. long by $1\frac{1}{4}$ in. wide, and $\frac{3}{8}$ in. holes are bored at the ends. The canopy rod (F) is a 1 ft. 1 in. length of $\frac{3}{8}$ in. dowel rod, fitted into one of the holes in the upright. In preparing the framework, care should be taken to see that the dowelled ends fit snugly into the holes, as the framework is not intended to be glued or pinned together. When assembling the parts, the top and centre rails (B and C) are fitted into the legs. The end rails are then fitted over the ends of the top rails. The canopy upright is fitted over one end of the centre rail and a hole bored in it to fit over the peg on the end rail, while the canopy rod is fitted into the upright. Small metal pins, which may be secured to small chains, should be fitted at the ends of the centre rail for fixing the legs (see Fig. 10), while similar pins could also be fitted at the ends of the top rails for fixing the end rails.

THE BODY OF THE COT should be made from canvas, drill or some such suitable material, made up in three portions as sketched at Fig. 11. Hems not less than $4\frac{1}{2}$ ins. wide should be formed at all the top edges to allow the fabric to be fitted over the framework, and the stitching which joins the three portions should not be continued above the hems. A deep lace or fancy edging could be arranged around the sides and ends of the cot as in Fig. 1, and the canopy should be of fancy material, with a hem at the top to allow it to be hung from the canopy rod and draped back. The woodwork should be suitably stained, polished or enamelled. (170)

THE folding cot sketched at Fig. 1 may be easily and cheaply made, and is most convenient where there is a small child, as it may be taken apart and packed into a small space either for travelling or when it is not required. The work could be carried out even by an amateur woodworker, but he will probably require his wife's help in sewing the fabric.

HARDWOOD such as oak, birch or beech should be used. The framework is shown complete at Fig. 2, and the various parts separately at Figs. 4 to 11. Except where otherwise mentioned, all the framework is out of $\frac{3}{8}$ in. stuff.

THE LEGS A, (see also Fig. 3) are 3 ft. 6 ins. long by $1\frac{1}{4}$ ins. wide, and $\frac{3}{8}$ in. holes are bored at the top and in the centre. Blocks 3 ins. long by $1\frac{1}{4}$ ins. wide are fixed in the centre of each



FIGS. 2 TO 11. CHILD'S FOLDING COT: SKETCHES AND DETAILS OF CONSTRUCTION.

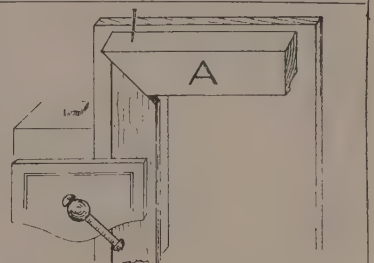
Nailing Picture Frame Corners

E. C. (Barnsley) asks how to hold the sides of a picture frame whilst nailing the corners.

REPLY.—A very successful method and one which is an adaptation of the trade picture frame maker is as illustrated. One upright piece of the frame is gripped in the vice and behind this upright is a piece of planed inch boarding, the idea being to keep the back of the picture framing level and out of winding during the nailing process. The piece (A) is neatly bored to take a fine steel nail and the point of the nail is inserted in the hole, which should nicely fit the diameter of the nail. Glue the mitres of both pieces of the framing and start the nailing operation as in our sketch, that is holding A about 1/4 in. above the upright. As the nailing is continued the piece A will drive down level with the other piece. Put the other part of the frame together in a similar manner and then quickly glue and nail the two halves together. Another very successful method is to glue the mitres and then bind the edges with fine string. Leave the

frame to set and then carefully bore the corners with a suitable boring bit such as a large-sized fretwork drill. Carefully bed the frame on the bench and drive in the necessary nails between the strings; take the string off the frame and the work is completed. If following the last-mentioned method use 1 1/4 in. or 1 1/2 in. steel panel pins and nail from each side of the mitre, i.e., two nails at each corner of the frame. There are on the market several picture frame clamps which hold the corner whilst the nailing is accomplished. (159)

METHOD OF
NAILING
CORNERS OF
PICTURE
FRAME.



BACHELOR'S BEDROOM CABINET

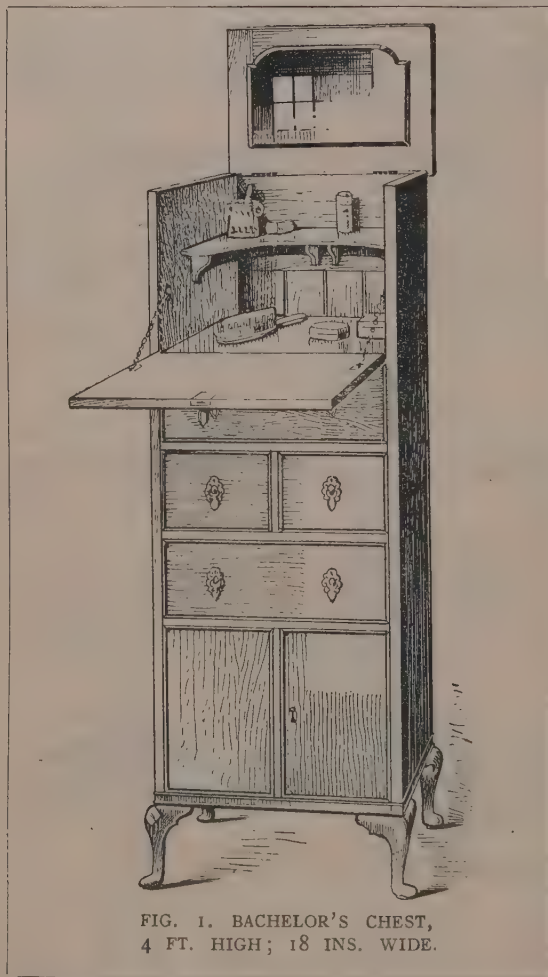


FIG. 1. BACHELOR'S CHEST,
4 FT. HIGH; 18 INS. WIDE.

THERE probably has never been a time when the wants of the orderly bachelor were more studied and his requirements catered for in so efficient and compact a manner. Certainly, the old time taunt of untidiness has little excuse when so serviceable a piece of furniture is obtainable to meet varying needs of toilet such as that dealt with in the present article. The requirements of a small dressing table are met by the arrangement of the upper part. The whole of this portion is enclosed by a fall front with chain supports, whilst above a hinged top to raise can be fitted with a shaped mirror of a size that will usually meet most needs of the busy male. Below, a set of drawers is provided, and the bottom cupboard (with or without a shelf) should be useful for oddments of dress or for boots and shoes. Where a dressing table already exists in the room the upper portion might very well be utilised for writing purposes, the interior being fitted with a rack arrangement for stationery, etc. Extreme dimensions are 4 ft. 3½ ins. high, 1 ft. 6 ins. wide and 12 ins. deep. Oak, walnut,

mahogany and (for staining) birch are all suitable, or one of the now favourite dominion furniture hardwoods might be used.

CONSTRUCTION.—The sides (Fig. 4, A) may be of ¾ in. net thickness for a lightly made piece of work, although it would be preferable to allow 1 in. for such a part. The front edge will require finishing clean and true throughout, whilst the back edge will be rebated to receive a ¾ in. carcass back. Dovetails also will require cutting for the entry of parts as these occur.

THE TABLE TOP (B), which forms the floor of the upper portion, will be either dovetail-grooved or slot-dovetailed into position with the joint cut back 1 in. from front edge. The finished width should allow it to recess sufficiently for the carcass back to bed direct upon it for screwing purposes.

THE THREE BEARER RAILS (C) will be slot-dovetailed into position with the joint set back ¼ in. from front edge. The part will be grooved on the inner edge to receive the tongue on the runners (D), both these and the back rails (E) being tongued together and grooved for dust-boards to agree.

In fitting, the bearer rail will thus be first entered into position along the ploughed groove cut for it in ends; the runners will then be tongued into bearer and the dust-

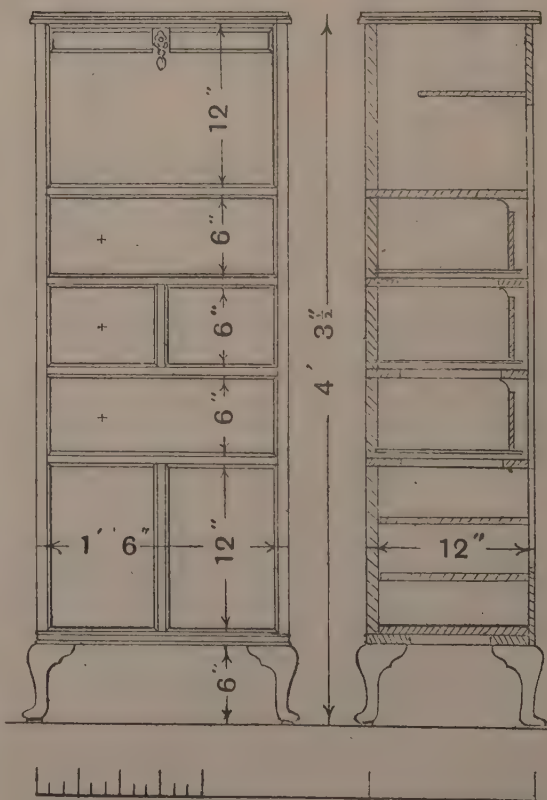


FIG. 2. ELEVATION.

FIG. 3. SECTION.

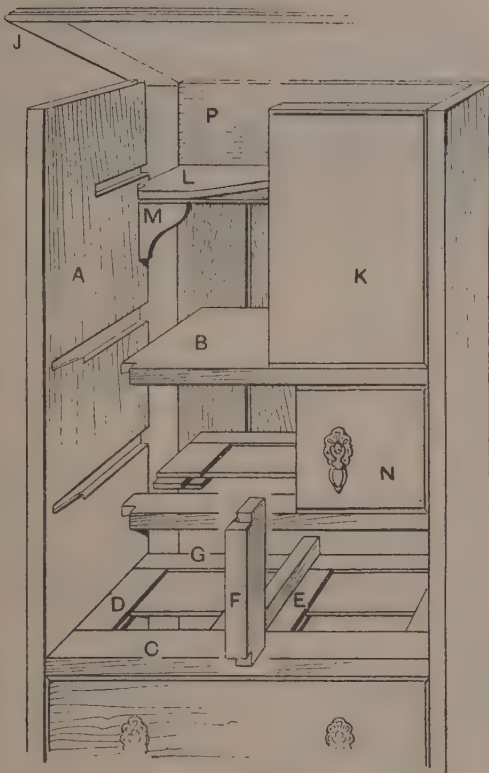


FIG. 4. CARCASE CONSTRUCTION.

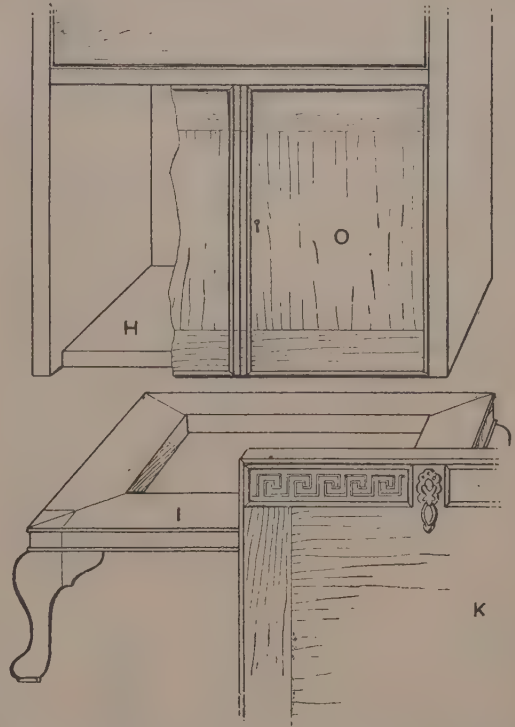


FIG. 5. DETAIL OF CUPBOARD AND STAND.

boards pushed home from the back, the back rail being finally tongued to the runners and finishing flush with the depth of the rebate on ends. The centre division between the two small drawers will be slot-dovetailed into position top and bottom. Centred from this division a wide runner will be tongued to rails front and back, whilst a guide slip tongued to the division may take the place of a solid continuation piece. The guide slip will be screwed into position from below, and the dustboards can be of 5 mm. ply.

THE CARCASE BOTTOM (of either $\frac{3}{4}$ in. or $\frac{1}{2}$ in.) will be lap-dovetailed into position and may be either screwed or nailed. Below this, lining rails (I) will be mitred and tongued up to form a frame which will be screwed into position. Lengths of $\frac{1}{4}$ in. bead can be glued and panel-pinned on face (as shown in Fig. 5) and mitred to continue round sides to back.

LEGS.—A set of cabriole legs will be required, and may finish 6 ins. high. The design, however, allows a margin of from 5 ins. to 8 ins. high for these legs which will probably prove a serviceable arrangement where legs have to be purchased from the sundriesman. They can be framed into the lining rails with tenons or dowels, or the legs (with shaped wing pieces attached by tenoning and glueing) can be both screwed and glue-

blocked into position. The edge outline of legs may be plain, or can be finished with a $\frac{1}{4}$ in. bead worked along the shaping and cut to die away as the bead approaches the toes.

THE HINGED TOP (J) to the cabinet can be finished with 2 in. clamps to be tongued on with hardwood tongues which should be cross-cut; alternatively the part could be mitre-clamped. The edge can be moulded a plain flat thumb or, as indicated in Fig. 2, may be finished with several members.

The interior of this top will have a mirror, fastened with neat nickel clips which nowadays are readily procurable from the stores or glass factor. The size for mirror may be 15 ins. by 8 ins., with the top edge shaped and with a $\frac{1}{4}$ in. bevel. The length of the mirror allows it to overlap the joints of the clamps for screwing.

THE FRONT FALL (K, Fig. 5) will be clamped up in a similar manner, and is finished with mitred lengths of $\frac{1}{4}$ ins. flat all round to project $\frac{1}{4}$ in. in the manner of a cocked bead. In hingeing the part ordinary butt hinges may be used and will not look unsightly when cut into the bead, or, if preferred, lengths of piano hinge may be substituted for both top and fall.

Whilst this fall may be finished all plain, a slight relief might be effected by mounting strips

of Greek key detail on either side of a central space, the latter being reserved for the mounting of a drop handle which will be necessary for hand hold. When down, lengths of neat brass or nickelled chain will serve for supports. Instead of the key detail, lengths of close fluting may be substituted, both details being readily procurable per foot run.

THE SHAPED SHELF (L) will be shallow grooved to sides, and will be also supported at ends and in centre by shaped brackets (M) which can be glued and screwed into position with fine brass screws.

THE DRAWER FRONTS, two long (N) and two short, will be finished with a beaded surround as before, and are allowed a full length in the cutting list for accurate fitting when the casing to receive them has been made, the aim being to secure a glove tight fit without binding.

THE LOWER DOORS (O) also carry the $\frac{1}{2}$ in. bead, but in fitting this to the meeting edges of the doors the bead is set in about $\frac{1}{2}$ in. so that when finished a space of about 1 in. shows between the beads in centre. It would be possible to introduce within the beading, lengths of the key or flute detail along the top of these lower doors with pleasing result if relief is desired here.

The bottom space enclosed is indicated as fitted with a couple of $\frac{3}{8}$ in. shelves (or 5 mm. plywood) to rest upon fillets $\frac{3}{8}$ in. by $1\frac{1}{2}$ in. screwed to carcass sides.

BACK.—There remains the carcass back which is indicated as of V-grooved matching. In making this it will be convenient to clamp at top with a length of stuff 6 ins. wide to which the inner shelf will be screwed. A bottom clamp of 4 ins. or 6 ins. width will also be fitted with the space between of 4 ins. by $\frac{3}{8}$ in. V-grooved matching tongued in. This back may be screwed to the rebated ends with round headed brass screws,

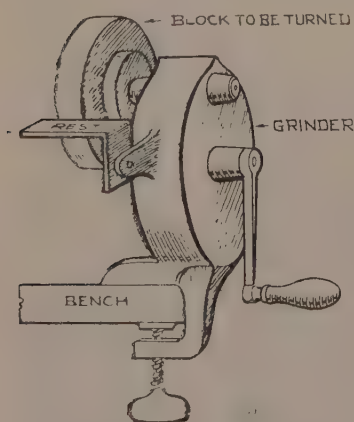
or both upper and lower clamps might be dovetailed into position which will stiffen the construction favourably.

If it is desired to fit a panel back, stiles and rails should be of 3 ins. width and a four panelled back would be as good an arrangement as any. A $\frac{3}{4}$ in. thickness could be used with plywood panelling if the lightest construction is aimed at.

THE CUTTING LIST is as follows:—

	Long. ft. ins.	Wide. ins.	Thick. ins.
A Two sides	3 10	12	$\frac{3}{4}$
B One table top	1 6	12	$\frac{3}{4}$
C Three bearer rails ...	1 6	2	$\frac{3}{4}$
D Six runners	0 10	2	$\frac{3}{4}$
E One centre runner ...	0 10	3	$\frac{3}{4}$
F One drawer division ...	0 7 $\frac{1}{2}$	2	$\frac{3}{4}$
One guide slip	1 0	1	$\frac{3}{4}$
G Three back rails ...	1 6	2	$\frac{3}{4}$
Four dustboards to fit.	5 mm.	plywood.	
H One carcass bottom ...	1 6	12	$\frac{3}{4}$ or $\frac{1}{2}$
I Two lining rails	1 8	2 $\frac{1}{2}$	$\frac{3}{4}$
Two end rails	1 3	2 $\frac{1}{2}$	$\frac{3}{4}$
Beading	8 0	$\frac{1}{2}$	
Set of cabriole legs, 5 ins. to 8 ins. high.			
J One clamped top	1 7	13	$\frac{3}{4}$
K One fall	1 4 $\frac{1}{2}$	12	$\frac{3}{4}$
L One shelf	1 6	8	$\frac{3}{4}$
M Four brackets	0 3	1 $\frac{1}{2}$	$\frac{3}{4}$
N Two drawer fronts	1 5	6	$\frac{3}{4}$
Two drawer fronts	0 9	6	$\frac{3}{4}$
Sides and backs, $\frac{3}{8}$ in. Bottoms, $\frac{1}{2}$ in. or ply.			
O Two doors	1 0	8 $\frac{1}{2}$	$\frac{3}{4}$ or 9/mm ply.
Beaded flat	27 0	$\frac{7}{8}$	
P Back: two clamps	1 6	6	$\frac{3}{4}$
15 ft. of 4 in. by $\frac{3}{8}$ in. V-grooved matching.			
Two cupboard shelves ...	1 6	10 $\frac{1}{2}$	$\frac{3}{4}$

Lengths are full; widths generally and all thicknesses are net. (142)



READER'S SUGGESTION FOR A TEMPORARY LATHE HEADSTOCK.

A TEMPORARY LATHE HEADSTOCK.—Whilst repairing a hand rail the newel posts of which were fitted with turned caps, I was faced with the difficulty of making new caps, most of the old ones being broken. The job had to be done at once with the materials provided and there was no lathe at hand. I got

which is geared up to rotate a composition grindstone. The blocks of wood were roughly cut to shape and a hole bored through them the same size as the grinder spindle. A block of wood was then fitted to the spindle in place of the grindstone, and the grinder tool rest was used to support the wood-turning tools. The block was revolved by turning the handle and the wood was thus quickly and accurately turned to the desired shape and size, the hole being afterwards plugged up and levelled off. I then mortised the pieces to fit the existing tenons and the job was quite a success.—P. W. GIBSON (Stockton-on-Tees). (152)

THE JANUARY number (still in print) included designs for a handsome tallboy cabinet, light bureau bookcase, oak sideboard, lady's sewing casket, stationery cabinet, etc. It also contained the opening instalments of our two new series on home carpentry and built-in furniture.

over the difficulty by using my hand grinder,

MEAT SAFE SUITABLE FOR A RECESS



FIG. 1. MEAT SAFE, 36 INS. WIDE.

THESE diagrams have been prepared at the request of a reader who wishes to make a meat safe to fit in a recess underneath a shelf, the space available being 36 ins. by 17 ins. CONSTRUCTION.—Fig. 1 is a sketch of the complete safe, Fig. 2 a sketch of the framework.

Fig. 3 a plan, and Figs. 5 to 8 details. A simple method of construction is to frame each end with two legs (A), 33 ins. long by $1\frac{1}{2}$ ins. square, and top and bottom rails (B and C), $16\frac{1}{2}$ ins. long by 2 ins. wide by 1 in. thick. The rails are tenoned into the legs, as shown at Figs. 4 and 5, the work being kept level on the inside. Panels of $\frac{1}{2}$ in. grooved and tongued boards are fitted between the legs on the outside, the boards finishing level with the top and bottom edges of the rails to which they are nailed. The front (Fig. 6) is framed separately from 1 in. stuff, the two stiles (D) being $17\frac{1}{2}$ ins. long by $1\frac{1}{2}$ in. wide, and the top and bottom rails (E and F), 33 ins. long by 2 ins. wide. The top and bottom rails are tenoned into the stiles, a $\frac{1}{4}$ in. bead is run along at the ends, and the frame is screwed between the front legs, as at Figs. 2 and 3. The top, back and bottom are covered with $\frac{1}{2}$ in. grooved and tongued boards similar to those used in the ends, the edges being rounded as at Fig. 7.

THE DOORS are framed from 1 in. stuff, the stiles being $1\frac{1}{2}$ in. wide and the rails 2 ins. wide. The rails are tenoned into the stiles, a bead is run around the outer edges and the inner edges are rebated for the perforated metal panels which are fixed with fillets (Fig. 8). The doors are hung with butt hinges, and the meeting edges are rebated together. (160)

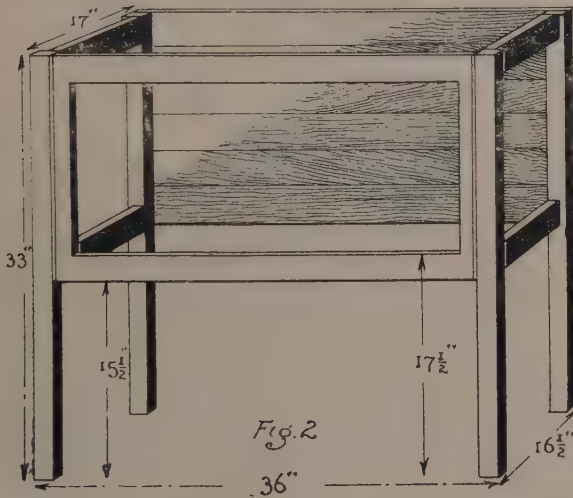


Fig. 2

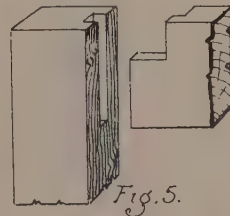


Fig. 5.

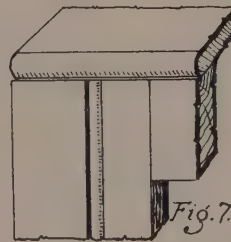


Fig. 7.

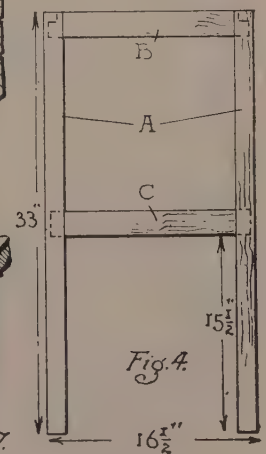


Fig. 4.

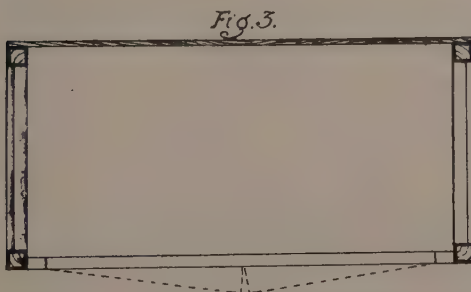


Fig. 3.



Fig. 8.

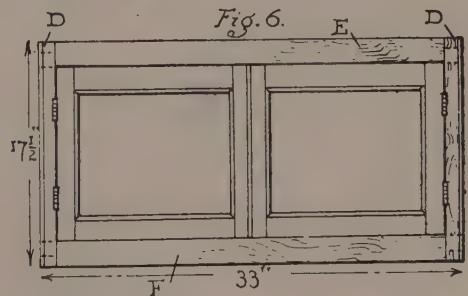


Fig. 6.

FIGS. 2 TO 8. SKETCH OF CARCASE AND DETAILS OF CONSTRUCTION.

HOME CARPENTRY

2.—RIPPING, FACE AND EDGE MARKS, PLANING AND TESTING, ETC.

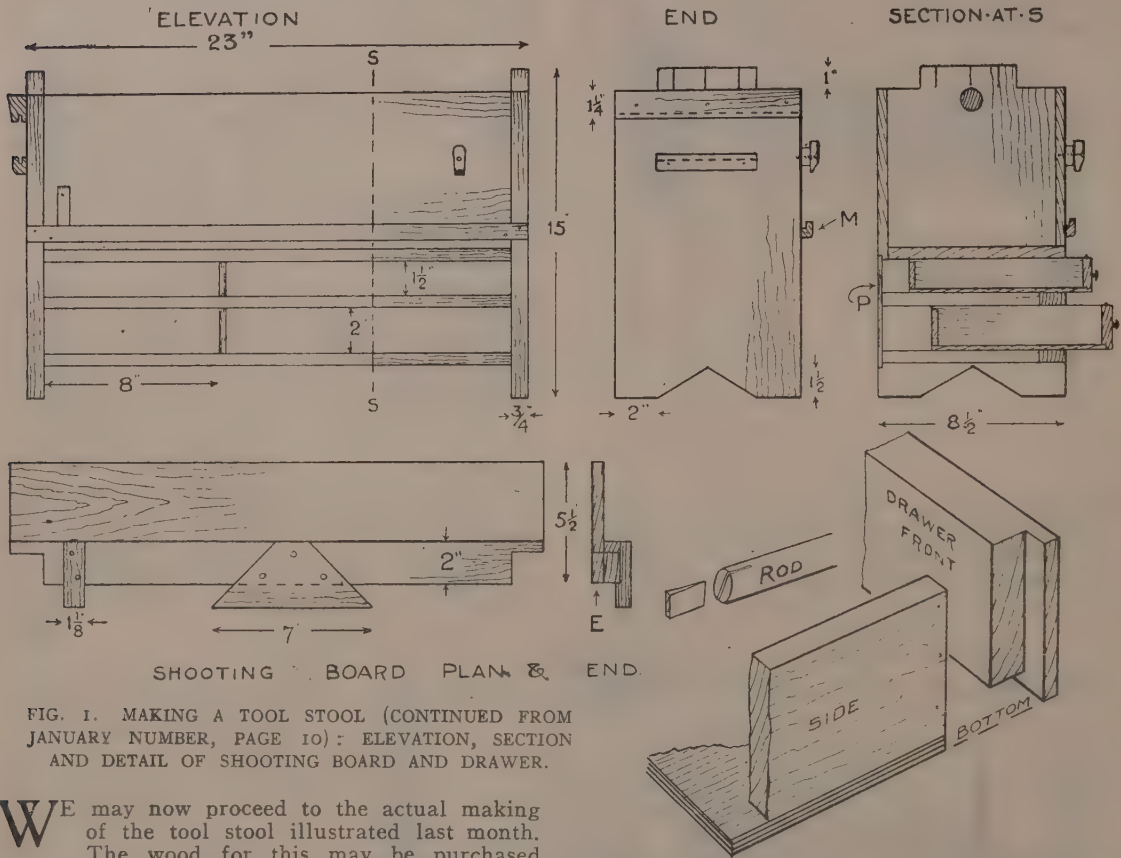


FIG. 1. MAKING A TOOL STOOL (CONTINUED FROM JANUARY NUMBER, PAGE 10): ELEVATION, SECTION AND DETAIL OF SHOOTING BOARD AND DRAWER.

WE may now proceed to the actual making of the tool stool illustrated last month.

The wood for this may be purchased either in the board or all ready cut up and machine planed as in cutting list. Suitable woods for the purpose are red deal or canary (American whitewood). If bought in the form of boards there will be a certain amount of waste wood (or cuttings), but this odd stuff can eventually be used up for other jobs. If you are to cut up your own boards, refer to the sizes given in Fig. 1, and mark out the wood 1/4 in. wider and 1 in. longer than the finished sizes. This allowance is necessary for the planing and sawing operations which in due course follow.

SAWING.—Having roughly marked out the boards with pencil lines take the handsaw and proceed as follows. Grasp the saw firmly by the handle and place your right knee on the board to keep it steady. Take up a "stance" or position so that your right knee, the forearm and the back edge of the saw blade are in a direct line. The left hand should rest on the end of the board, and the thumb should guide the saw blade on to the line to be sawn.

Commence the sawing as shown at Fig. 2; that is, draw the saw back about 4 ins. then lift it and repeat this operation two or three times so as to make a starting groove or saw kerf in the timber. Remove the thumb well away from the saw and

proceed to cut the board with free swinging strokes. Do not get into the habit of using the point of the saw too much; the portion of the saw blade from the centre to the heel does most of the work. Avoid also "laying" your saw too flat; about 45 degrees gives the best cutting action. Bear in mind, too, that any attempt to force the saw to give a fast cutting action will only result in your running off the pencil line. Endeavour to keep the side of the blade at right angles to the face of the board and test this occasionally by placing the set square on your board during the sawing operation.

The cross-cutting of boards is of course accomplished in a somewhat similar manner, but a cross-cut saw should be used for this purpose and the cut-off end of the board should be supported to obviate a broken or shattered edge as at Fig. 3 S. A cross saw with medium sized teeth will cut in the direction of the grain much better than a rip or large toothed saw will cross cut. Having rough sawn the various pieces required, place on each piece the face and edge mark. The wood to be sawn may be laid upon a pair of trestles, or an old box or stool or chair seat will answer.

FACE AND EDGE MARKS.—Just as when com-



FIG. 2. POSITION WHEN RIPPING WITH THE GRAIN.

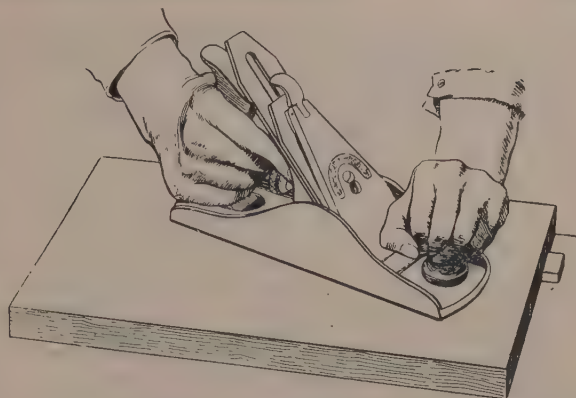


FIG. 5. METHOD OF PLANING TO TAKE WOOD OUT OF WINDING.



FIG. 3. SPLINTERED END, SHAKES, ETC.

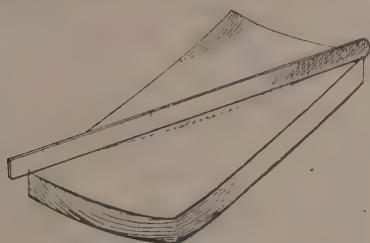


FIG. 4. TESTING DIAGONALLY.

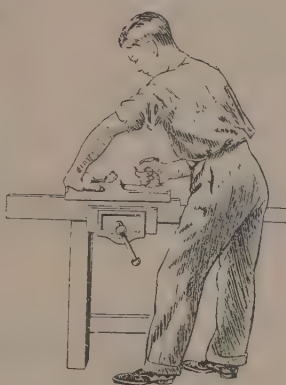


FIG. 6. POSITION AT BEGINNING OF PLANING STROKE.

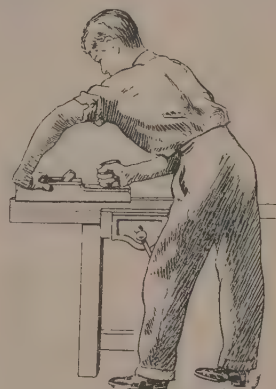


FIG. 7. POSITION ASSUMED AT END OF PLANING STROKE.

mencing to set out a plot of land for building purposes, the surveyor usually drives in a peg which acts as a starting point for his measurements, the joiner or carpenter makes use of a "face mark" for his starting point. It is the usual custom to place this face mark on the *best* side of his wood with the tail of the mark running off and pointing to the best edge of his timber (Fig. 3 S). The tail of the face mark is the essential point. The "edge mark" is simply a large X.

To select the best side and the best edge, the worker must know what are to be termed defects, such as a splintered end caused by bad and careless cross cutting, bruises, sapwood, cracks, shakes, weathered ends, knots, etc., and he must not be misled by choosing the smoothest portions of the wood which may not require so much planing-up. Splintered end is illustrated at Fig 3 S. Sapwood, or immature wood, is usually lighter in colour than the heartwood, the latter being that portion of the timber between the pith of the tree and the sapwood. The inclusion of sapwood (especially the sapwood of the hardwoods) leads to undue shrinkage when boards are joined together. It is also the happy hunting ground of

all kinds of live stock which infests timber, owing to the presence of starchy and sugary matter. A cup shake, which is often caused owing to the young tree swaying before a gale of wind is shown at Fig. 3, A.

Timbers have a tendency to shrink in the direction of the annual rings; therefore the heart side of any board will dry out in rounding as at Fig. 3, C. Star shakes (Fig. 3, B) are due to this circumferential shrinkage. Deep bruises are often caused by the grip of the steel dogs used to hold and lift a log whilst removing it from the forest, or loading it previous to its conversion at the saw mill or lumber camp. Light bruises are frequent through rough handling the boards, or from the bad habit of walking on newly sawn stuff either in the mill or the workshop. Cracks and shakes are more or less natural to trees, although they are occasionally caused by rough felling of the tree. Weathered ends on boards or planks are necessary evils caused by difference in temperature—snow, rain and hot sunshine, and the beginner should carefully look for this defect which appears at the ends of nearly all boards. He should measure and set out for rough sawing so as to avoid these faulty ends and make due allow-

ance in his length. After a thorough examination of each of his roughly sawn pieces the face and edge mark should be placed thereon.

The next step is to plane up the face side true and flat, or "free from winding," as it is called in the trade. After dressing, renew the face mark and then give attention to the planing of the edge. This edge should be planed true and square with the face side and again marked X. Each piece should be treated in this manner, thus leaving the worker with two true and prepared faces which are at right angles to one another. These prepared faces serve as a starting point for all subsequent measuring and setting-out.

PLANING.—The roughly sawn timber is now ready to be planed up and a few general remarks on this subject may help the less experienced worker to avoid some of the usual pitfalls. Take up one of the pieces of wood which is to be used for the end of the stool, and place across its diagonals (that is from corner to corner each way) a steel rule or other straightedge (Fig. 4) to test if it is in winding. If this be the case (as shown) it will be necessary to plane away a few shavings off the high corners, this being accomplished by using either a steel or a wooden plane in a diagonal direction as at Fig. 5.

As the planing progresses the wood must be frequently tested by placing the edge of the rule

across the diagonals across the width of the wood and along its length, until it has been wrought perfectly flat. When this stage of the planing is reached the face mark should immediately be replaced. Treat the face of each piece of wood in a similar manner and then (as an extra precaution against any irregularities of planing) test the face of one piece of wood against the face of all the others, turn by turn. This interchanging of face against face will prove if your surfaces are perfectly flat.

Now give attention to the planing of the edges of your various pieces, and note that in the illustrations of edge planing we have indicated how to read the grain. It may be taken as a general rule that, if the long fibres run slightly uphill, as at Figs. 8, 9 and 10, this will be the best direction to plane the wood smoothly without tearing and ragging the grain. Cross grained timbers, such as curly mahogany, may have to be planed diagonally, and in very exceptional cases it is necessary to use a finely set steel plane and work at right angles to the fibres, then finish with a steel scraper. This will be dealt with later.

Place the piece of wood in the vice edgewise up as at Fig. 6, and, standing slightly behind it in a firm but normal position with the left foot slightly leading, freely swing the arms and allow



FIG. 8. ARROWS SHOW WHERE POWER SHOULD BE EXERTED AT BEGINNING AND END OF PLANING STROKE.

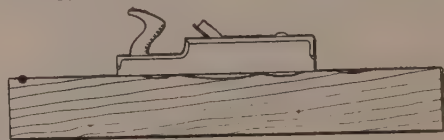


FIG. 10. SHOWING HOW A LONG PLANE SPANS THE HOLLOW PORTIONS OF THE WOOD WHEN PLANING.



FIG. 9. AVOID "DIPPING" ERRORS AS SHOWN.

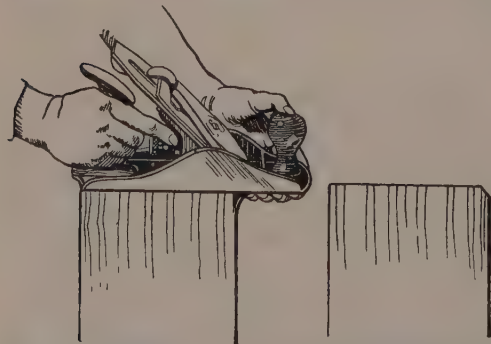


FIG. 11. SHOWING SPLINTERED EDGE.

FIG. 12. EDGE (AT RIGHT) CUT AWAY.

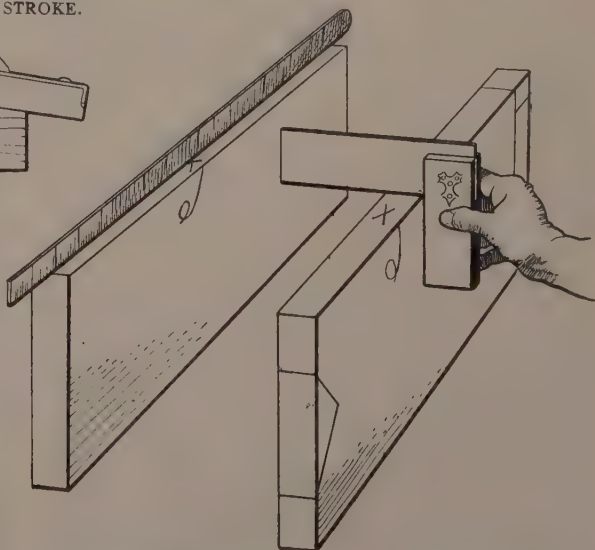


FIG. 13. TESTING EDGE FOR STRAIGHTNESS.

FIG. 14. TESTING EDGE WITH TRY SQUARE.

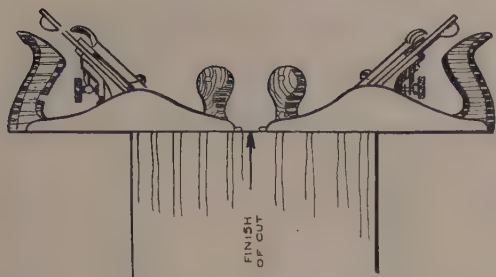


FIG. 15. PLANING FROM EACH SIDE OF BOARD TO AVOID SPLINTERED END.

the body to assume the position at Fig. 7 at the end of the stroke. At the commencement of the planing stroke the left hand should hold the front end of the plane firmly downwards on to the wood, whilst the right hand imparts the forward movement. When finishing the stroke the pressure of the left hand is eased, and a heavier downward thrust is exerted by the right hand so as to keep the body of the plane in contact with the wood (see Fig. 8).

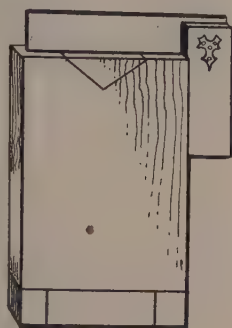


FIG. 16. TESTING SQUARENESS OF END TO EDGE.

Faults which the inexperienced worker must guard against are "dipping" at the beginning and "dubbing off" the wood at the end of the stroke (Fig. 9). Another hint is always to be sure that the cutting edge of the blade of the plane is at least $\frac{1}{2}$ in. behind the wood when commencing the planing stroke. This will allow a clean cut shaving to be taken from the very commencement. Sunk handled wooden planes (as illustrated) and the handled steel planes have a better balance than the old type; the centre of gravity is better positioned. The advantage of a long plane for edge planing is obvious from Fig. 10, where the cutting iron of the plane will cut away the top of the hills but will span the valleys or hollow parts.

Testing for straightness of an edge is shown at Fig. 13, and the method of using the try square for testing if the face and the edge be at right angles is given at Fig. 14.

Planing end way of the grain is always a difficult proposition with the novice, because there is a great danger of shattering the finishing edge (Fig. 11). This, however, may be avoided in two ways: first by cutting off the corner of the wood (Fig. 12); but, where this small piece cannot be wasted, the worker must resort to the method of starting his planing from each edge of the board and lifting it so that the cut will finish at or about the centre of the board (Fig. 15). The method of testing the end of the board

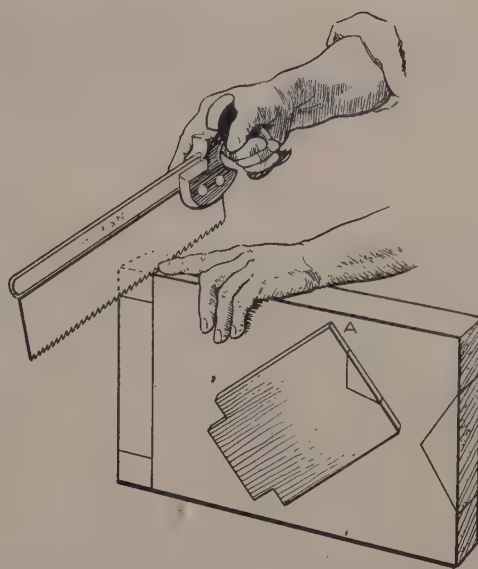


FIG. 17. METHOD OF SAWING CORNERS (SAWING V CUTS IN INSET).

to see if it is square with the edge is given at Fig. 16.

After the ends have been planed up and brought to an approximate thickness the wood may be set out with fine pencil marks and the notches or set-backs at the top may be neatly cut away with the tenon saw. Here again the index finger of the left hand guides the saw blade on to the line during the first two or three backward strokes which form the starting groove. The finger is then removed clear of the danger zone and the sawing is proceeded with until the blade is about half way down the cut. At this stage the handle of the saw should be lowered until the blade is horizontal and the sawing is then completed (Fig. 17). Do not attempt to force your tenon saw. The back iron is fitted on to the saw for two reasons: first to tension the saw blade, and secondly to give sufficient weight to the tool.

To saw the V cuts at the bottom of the ends, tilt the end board until the line A (see inset Fig. 17) is vertical when the work is held by the vice. It is much easier and more positive to saw correctly when the line is vertical, and it is also easier to partially revolve your wood than to attempt an oblique cut with your saw. (168)

(To be Continued.)

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THE QUESTION BOX

QUESTIONS only of general interest can be answered in these columns. Readers will kindly note:—(1) Detailed replies or sketches cannot under any circumstances be sent by post; but, as the Editor may require further information, a stamped addressed envelope should be enclosed. (2) Full particulars of what is required should be clearly stated, and (if possible) a rough sketch with over-all sizes enclosed. (3) Questions of purely personal interest cannot be dealt with in these columns.

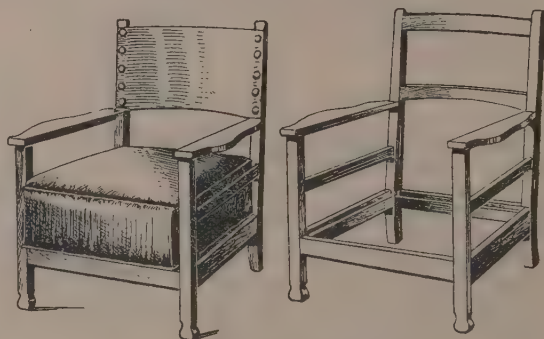
NOTE.—With each Query must be sent a Coupon (see foot of page iv. of cover). All queries to be addressed: Editor, THE WOODWORKER, Montague House, Russell Square, London, W.C.1.

Fireside Chair

G. W. K. (Bristol) asks for help over the dimensions of a fireside chair.

REPLY.—Dimensions for the type of chair you wish to make may be 22½ ins. wide over legs, with arms 14 ins. high; back to front over legs 18 ins. and height over all 28 ins., but the latter measurement will give a back considerably higher than that indicated by your sketch. The seat rail being a full 6 ins. high and the loose cushion about 7 ins. high, the arm might finish about 18 ins. high and above this the back would rise 10 ins. to top of hide covering. The depth back to front and width across front would be comfortable and ample for the average adult sitter. Front legs may be of 1½ in. by 1½ in. stuff with shaped toes, easily effected with gouge and rasp. The seat rails could be of 2 ins. by 1½ in. stuff all round, to be rebated ¾ in., tenoned into position and pegged; or these seat rails may be 2 ins. by 1 in. stuff, the rebates being formed by separate lining slips glued and screwed within for the purpose. The arms may be fitted with straight pieces as you show, but extra comfort would be derived by shaping these to afford a better rest for the elbows and by allowing about ½ in. pitch towards the back where they enter the back legs. Stuff ¾ in. thick will be used. The back legs may finish 1½ in. wide on face by 1½ in. thick at seat height, the parts being tapered slightly to 1 in. at top. The top back rail is shown about 2 in. wide, which is at its narrowest and might be increased to 2½ ins., and the same applies to the second rail which also has the under edge cut to a shallow curve. Mid rail under arm is 1½ in. by ¾ in. net. Many of these fireside chairs are fitted with a lath bottom upon which the cushion will bed. Such laths should not exceed ¾ in. thickness and may be 2 ins. wide, to allow a slight "give" to the weight of the sitter. Alternatively a bottom of plywood may be fitted or the usual interlaced webbing. Laths, if used, can be screwed to enter flush into the rebate, front and back.

The back can be covered in hide, brought over and finished on the shallow-rebated thickness edges of the framework. To obtain a good effect the leather must not sag on its surface, so that in addition to straining it evenly and flat it will be best to stuff it up slightly with a layer of wool overlaid by a layer of evenly distributed horsehair. In doing this it is best to shallow-rebate the face of opening and tack down to this a back of hide as taut as possible. The stuffing may then be distributed evenly in a calico covering to lie upon the backing, finish being with round-headed brass nails of large size. The cushion may be covered in hide. (120)



DESIGN FOR FIRESIDE CHAIR.

A Staining Difficulty

L. A. C. (Birmingham) is experiencing some difficulty in staining and polishing a bedroom table which is made up in mahogany. He reached the last stages of the wax polishing process and was very disappointed to find a greenish colour showing through the polish.

REPLY.—From the sample you send we surmise that you have used your stain too freely and failed to wipe the surplus stain lightly off the surface. Many of the aniline dyes, if used too strong, have a greenish tinge when dry and this applies especially to the bismark brown variety, which is used to obtain a mahogany stain. It would be better practice slightly to weaken the stain on the next job and, after the first coat has been applied and is thoroughly dry, give the job a second coat of stain. This is more satisfactory than giving the work one heavy coat. Another good result is obtained for dark mahogany by first applying a dark walnut stain and afterwards a mahogany stain. This will give the work almost a damson colour.

Try the following method as a remedy. Wipe off as much of the wax polish as possible, and then ease down the surface of the work with No. 0 glasspaper. Then body up the table with french polish to which you have added a little bismark brown spirit colour to give a red tinge. We think this will amalgamate and kill the greenish tinge. When you have a thin body of polish on the surface, set the job aside to harden a day or two and then use a wax polish which is tinted red. (104)

REMEMBER that we shall be pleased to post a specimen copy of THE WOODWORKER to any of your friends, likely to be interested, if you will send their names and addresses to Evans Bros., Ltd., Montague House, Russell Square, W.C.1.

Reading Stand

H. G. L. (Sevenoaks) asks how to make a small folding reading stand that would support a newspaper at the breakfast table.

REPLY.—Convenient sizes for such a stand would be 12 ins. by $7\frac{1}{2}$ ins., 12 ins. by 9 ins., or, for a larger size, 14 ins. by 10 ins., all of which would be sufficiently wide to take the average newspaper doubled in two. The actual slope could be in mahogany, walnut or oak, or it would be possible to use 5 mm. plywood for the purpose. As seen at A the stand might be in oak with shaped top corners. Plain wood of course may be used, but if a better effect is desired the face might be quartered up, with an inlaid diamond in centre. This treatment might be finished by inlaying the edges with a $\frac{3}{8}$ in. cross-cut banding, or an applied panel of figured veneer might be laid on the $\frac{3}{8}$ in. thickness. At B a suggestion is given for fret-cutting the 12 in. by $7\frac{1}{2}$ in. slope. C may be framed up of $\frac{3}{8}$ in. thickness. It may be either mortised and tenoned or bridle-jointed together at angles, in addition to being grooved on the inner or panelled edges for the reception of the bars which will be tongued in top and bottom. These also are of $\frac{3}{8}$ in. thickness. The framing itself may be $1\frac{1}{2}$ in. wide at top and sides, the lower rail being $1\frac{1}{2}$ in. wide net, with small shapings glued in the extreme angles.

There are several slightly varying methods of

support, D showing a shaped strut hinged to back of A. and further held by means of a fine silk cord attached to small brass eyes or rounded screw heads. E shows a slightly different shaping for the strut, which can be cut from $\frac{1}{2}$ in. stuff or plywood and a couple fitted to the slope behind. In G a ratchet slip notched at intervals of about 1 in. is hinged behind, near the bottom of slope, and a hinged strut fixed to a slip of equal thickness, $\frac{1}{2}$ in., with the lower end bevelled to afford a more secure grip when entered in the ratchet notchings. The newspaper will rest upon a return slip of about $1\frac{1}{2}$ in. width, thickness being $\frac{1}{2}$ in., or, if brass swivel pins are to be entered, as at Fig. 5, thickness had best be $\frac{3}{8}$ in. Such slips can be screwed from behind into position with small brass screws in addition to glueing. B is mapped out in 2 in. by 2 in. squares to facilitate a full size enlargement. (132)

Waxed Walnut Finish

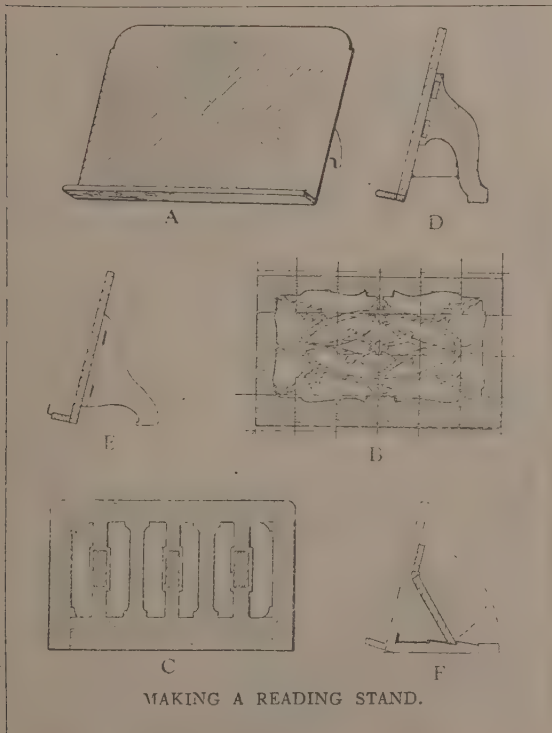
S. B. (Cheshire) asks how to obtain a waxed walnut finish.

REPLY.—American black walnut, Italian walnut, English walnut and Indian laurel, which is also a species of walnut, may be waxed or egg-shell glossed as follows. Wipe the work over with raw linseed oil and rub any excessive oil off the surface. Then fill in with a good paste filler of the required shade. Some walnut is darker than other varieties, hence the necessity of keeping an eye on the shade. Allow the work to stand a couple of days or more after filling, and then give the job a coat of brush french polish. When hard rub down with No. 1 glasspaper and give a second coat of brush polish. Again ease down with No. 0 glasspaper and work a rubber of thin polish on the surface. Three days after this treatment, wax the surface with beeswax and turpentine and repeat the waxing at intervals of a week or so. (116)

Re-Staining Deal Floors

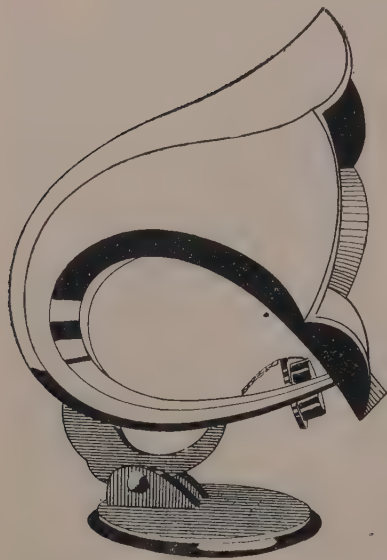
J. C. B. (Thornton Heath) says that the floor boards of his house are of ordinary red deal and when new were given two coats of dark oak stain fastened by one coat of underlac and finished by two coats of best floor varnish. After fifteen months the openings of the doors and other parts where the traffic is heavy are showing signs of wear so that the floors look patchy. They have been regularly wax polished.

REPLY.—Wash off the wax polish with hot water, or use a varnish stripper to move both the wax and what little varnish remains at one and the same operation. Let the floor dry a couple of days and then glasspaper it smooth, using middle 2 and then $1\frac{1}{2}$ grade glasspaper. Now re-stain the light parts with a suitable spirit stain, and when dry fasten this with a coat of painter's knotting. Allow it to dry for a day, then give the patchy parts a coat or if necessary two coats of best (oil) floor varnish. (118)



MAKING A READING STAND.

MAKING A LOUD SPEAKER HORN



SKETCH OF LOUD SPEAKER HORN.

At the present time there are many loud speaker units on the market for use as gramophone attachments, with which instructions are also given for making a simple type of loud speaker horn. For those who would like something giving a better tone, this article

the least distortion—a gramophone has been perfectly heard three quarters of a mile away and the same horn used as a loud speaker was heard three miles away.

The materials required are a sheet of plywood $\frac{1}{8}$ in. thick, 4 ft. by 4 ft.; cardboard is unsuitable, as it cracks on the surface; 12 yards tape, $\frac{1}{4}$ in. wide, and $\frac{1}{4}$ yards tape $\frac{1}{2}$ in. wide; a round base; a piece of 5-ply 6 ins. by 3 ins.; two 2 B.A. W/O pattern terminal nuts; a piece of 2 B.A. studding and about 15 yards of garden wire, 16 gauge.

First proceed to construct a wire shape as in Figs. 1 and 2. To do this the octagons should first be made to the sizes shown, the measurement of the faces of each being $\frac{1}{4}$ in., $\frac{1}{8}$ in., $\frac{1}{2}$ in., 1 in., $1\frac{1}{8}$ in., 2 ins., 3 ins. and $5\frac{1}{2}$ ins.

To these should be soldered the two top and two bottom wires of 32 ins. and $23\frac{1}{4}$ ins. respectively, the end hexagons being fitted first; the remaining ones are fixed at the points shown. After this it is an easy matter to fit the four side wires. Care should be taken to bend all the wires to the correct shape, noting the flare at the end.

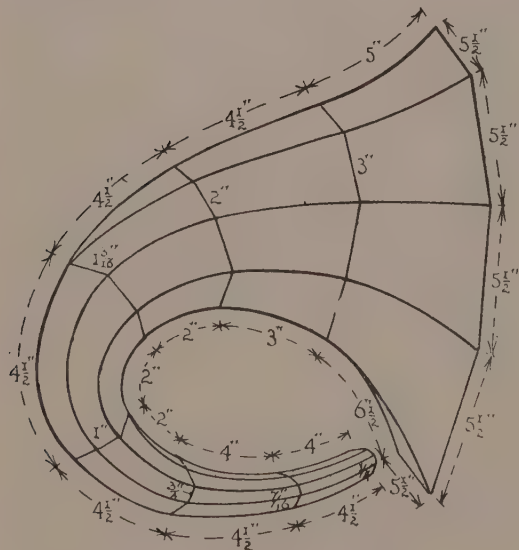


FIG. 1. DETAIL SIZES OF HORN.

will describe the making of a horn yielding results unequalled by any other and rivalling the cone type speaker for quality, with far greater volume, whilst the shape and outline should please even an æsthetic.

To obtain the very best results with a horn type loud speaker, it is essential that the horn should be exponential, *i.e.*, have considerable length combined with a steadily and regularly increasing diameter, and both of these conditions are fulfilled. Recent experiments have shown that, with a properly constructed horn, almost unlimited amplification can be obtained without

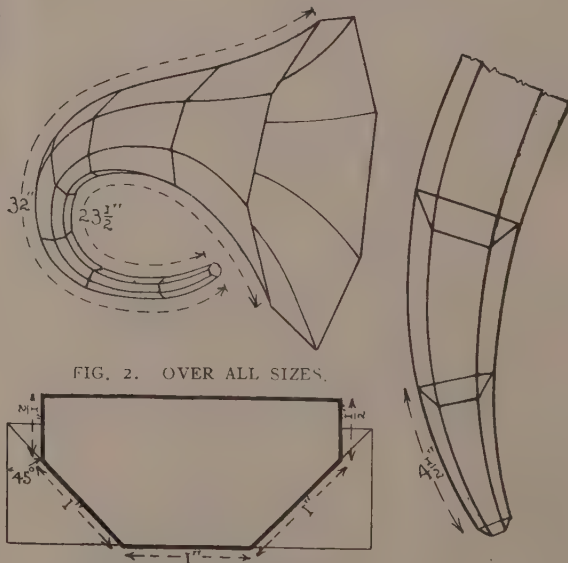


FIG. 2. OVER ALL SIZES

FIG. 3. HALF OCTAGON SUPPORT.

FIG. 4.

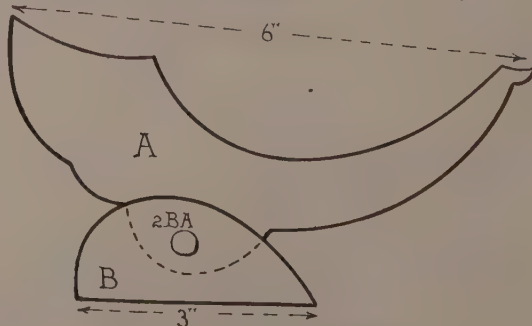


FIG. 5. THE PIVOT PIECE.

Having done this, construct paper patterns to the size and shape of the panels, one each of the top, the three sides and the bottom (only one each of the side panels is required, each being reversed for the other side). From these the plywood panels are cut, and as far as possible it should be arranged for the grain at the flare end to be parallel to the axis and for opposing panels to have parallel grains.

The edges of the panels are now bevelled and the panels are bent as near to their respective shapes as possible in the steam from a kettle spout, and held to that shape until set. The centre side panels will only require this at the flare end. Six pieces of wood, each half an octagon in shape, must now be prepared as shown in Fig. 3 to the size of each octagon, excepting for the small end and flare where they will not be required. These pieces are for temporary supports, the panels being pinned to them whilst they are glued together. Commence by pinning a centre side panel to these supports and fixing the supports to a board; then glue the two adjoining panels to the centre one, each being temporarily pinned to the supports until dry.

When dry the supports are removed and used for the other half, and when that is dry should be again used while glueing the bottom panel into position between the two side halves. While the work is proceeding lengths of the narrow tape, each long enough to return on the outside, should be glued over the inside seams. Before the top panel is fitted, however, tape should be glued along the top and side edges and allowed

to dry, so that the top panel can be glued to the projecting portion of the tape at the same time that it is fitted in place. At this stage a cork to fit in the small end, which is then bound, will be found useful, the binding being carried spirally up the horn to keep the last panel in position until dry. Care should be taken to see that the diameter of the small end is the same as the hole in the speaker unit. Whilst still bound the flare end should be glued, bending any panels that need it with steam.

Finish the ends and edges of the panels off and tape the flare edges with the wide tape; then smooth the outside seams down with sandpaper, bring the narrow tapes out and then down the outside seams, the ends being carried into the small end of the horn.

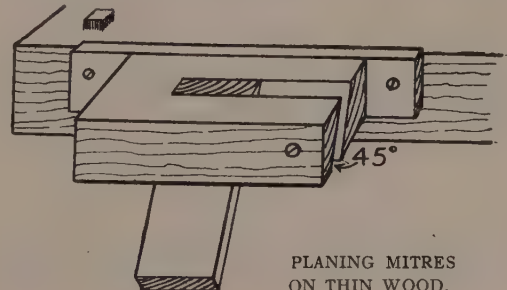
Now fix the pivot piece, which can be cut from the 5-ply as shown in Fig. 5A, and also mount the two pieces of 5-ply, Fig. 5B, on the base-board. In fixing the larger end of the pivot piece to the horn the two outer plies are removed at the end to produce a tongue, which is glued into a slot in the horn.

It now only remains to enamel, french polish, or otherwise finish according to the taste of the constructor.

Although the speaker is only 14 ins. over all from front to rear and 18 ins. high it gives an effective length of horn of 32 ins., whilst the distribution of sound is so even that no appreciable difference can be detected even at right angles to it. (163)

WESTERN RED CEDAR (*Thuja plicata*).—It was from western red cedar that the Indian of the Pacific coast hollowed out his war-canoes, split the planks for his huts or lodges and carved his historic and fantastic totem poles, and the same qualities which he found in this wood has made it the popular shingle wood of the North American continent. It is a valuable wood for posts, columns, porches and exterior fascia boards, cornices, trellis-work, pergolas and summer houses. Cabinet-makers find it useful for many purposes. In its natural colour it resembles mahogany, although the cedar is much lighter and softer. It has a distinct silky finish and is very effective for beams and panelled ceilings. The wood has a slight aroma which is pleasing and permanent and it is quite free from pitch or resinous exudations. Its odour is disliked by moths and other insects and it is therefore very suitable for clothes chests and linen cupboards. In size the tree ranges from 100 to 150 feet in height and its diameter, at 5 feet from the ground, is from 3 to 8 feet. The wood is easy to handle and work up and is remarkably free from any tendency to warp or shrink. The narrow sapwood is white, and the heartwood of mature growth is generally a brownish-red with occasional specimens which vary to a light yellow. Western red cedar wood was selected by the designer of Hart House for the roof of the music room, the trusses of which were left in the natural finish. (166)

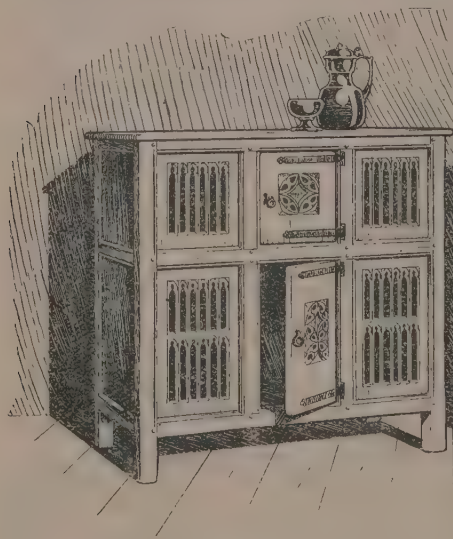
PLANING MITRES ON THE THIN WOOD.—I have found this simple home-made device most useful when mitreing the ends of thin wood, say, of $\frac{1}{2}$ in. and $\frac{3}{4}$ in. thickness, for light boxes and cases. I also use the same idea for mitreing plinths and cornices. A block about 12 ins. by 3 ins. by 2 ins. has a neat groove cut in its end at 45 degrees. If preferred the block can be built up by glueing three pieces together. I push into the slot the end to be mitred and any tendency for the piece to slip downwards is checked by tightening the large screw at the front right-hand end of the block. The mitre block is mounted on another strip of $\frac{3}{4}$ in. wood so that the appliance may be screwed to the edge of the bench and thus leave a working face which stands clear of the bench top. —W. S. GOWING (Maidstone). (165)



SOME JACOBEOAN WOOD FINISHES

FROM recent correspondence we find that many new readers are in difficulties with regard to the staining and finishing of Jacobean oak cabinets, chests and other pieces. Let us say, therefore, at the beginning of this paragraph that the term "Jacobean oak finish" is somewhat elastic and may mean anything from light brown to almost old black oak. Those examples which remain of the real antique Jacobean furniture and panelling appear to have been simply oiled; time, dirt and the fumes in the atmosphere have done the rest. It is, of course, a well known fact that the chemical reaction of ammonia on the tannic acid which is contained in the oak causes it to darken, and this process has taken effect in the course of time; therefore the colour of the oak varies according to the circumstances of its surroundings.

consideration. If a water stain is used and the work is filled in with water and plaster, the water in the plaster redissolves the stain. The worker simply washes away his stain and arrives more or less at his starting point, but with a half-stained and messy job. Another querist used a Jacobean wood dye and then filled in with a whiting and plaster filler. He, of course, complains of whiteness in the grain of the wood. This is certain to be the case, because he neglected to add a colouring agent to stain or colour his whiting and plaster. Another worker used a water stain, afterwards filling in the work with a mixture of whiting and plaster run down to a paste with turpentine and bound with a little gold size. He also complains of whiteness in the grain, and here again the cause of failure is the use of a white filler on a brown stain. We



TUDOR FOOD CUPBOARD.



JACOBEOAN COURT CUPBOARD.

Modern Jacobean finishes may be placed under two headings (1) The full finish, meaning that the pores of the wood have been more or less filled up by the application of paste wood fillers or the continued use of heavy spirit varnishes or brush polish. (2) The open finish, which means that no real attempt has been made to fill up the pores of the wood. In the open finish the main object is to stain the work to the desired shade, after which the stain is set, or fastened with one or more coats of polish. The work is then completed by the wax polishing process or, as some workers prefer, by giving it a few rubbers of french polish.

FAULTS IN FILLING-IN.—Many beginners appear to have trouble with their filling-in and, in one of the letters we received, the writer stated that he used a dark water stain and then filled in the oak with plaster of paris and water. Now what happened will soon be obvious after a moment's suggest that he remove as much of the polish

as possible by rubbing it with rag dipped in methylated spirits, then allowing the work to dry for a day. He may then apply a coat of Johnson's wood dye of a suitable shade so that it will be absorbed by the filler, and in this way his whiting and plaster will be stained. The work will then have to stand three days, when he may apply a fastening coat of polish.

Now for one or two recipes for positive polishing which, if carefully carried out, will give good results.

JACOBEOAN STAIN (A): WATER STAIN.—Mix powdered vandyke brown to a paste with strong liquid ammonia. Thin with warm water to the desired brown shade and apply this to the oak. For a red-brown stain, dissolve half an ounce of bichromate of potash in the water before pouring this on to the paste vandyke brown. Carefully note that all the oak should have previously been sponged down with warm water so as to raise the grain, and after this water has

thoroughly dried out for at least a day the raised grain must be well glasspapered to a smooth finish with No. 1 glasspaper. Then stain the work with the water stain. If the shade of the stain is not black enough add a little nigrosine (black) dye powder. Nigrosine is made in two varieties, one dissolving in water and the other in spirits; therefore ask for nigrosine soluble in water. This dye is one of the best blacks, and as a pinch of it goes a long way be very careful with the amount you add to your stain. The best procedure is to dissolve the nigrosine in water and then add sufficient of the black dye to the brown stain. In preference to using a stain which has had black added to it, some workers prefer to give the work an extra coat of the vandyke brown water stain.

Allow the work to dry two days and then ease down with No. 1 or No. 0 glasspaper. Dust the work and apply a coat of polish made by dissolving 5 ozs. of orange shellac in 1 pint methylated spirits. This coat of polish will seal or fasten the stain, and when it is dry you can proceed to fill in with a dark brown paste wood filler if a full finish is desired. If, however, you require an open finish, simply ease down the fastening coat with No. 0 glasspaper, dust the job and wax polish it. A bought or ready-made wood filler is the best for the purpose because all the ingredients have been specially ground mortar mill fashion and, being stained to the desired shade, they will not show white in the grain when the solvent evaporates. For a home-made filler use whiting, brown umber, turpentine and 1½ ozs. best gold size to a pound jam jar of the filler. The gold size is added to bind the other ingredients and cause the filler to stick in the pores of the wood. When the wood filler is thoroughly dry (allow two days if possible), give the work a coat of brush polish as previously

described so as to fasten the filling. Now finish by the french polishing process or by waxing.

JACOBEOAN STAIN (B).—Crush asphaltum and dissolve ¼ lb. in 1 pint turpentine. Place the above in a wide mouthed jam jar and stand the jar in warm water, glue kettle fashion, but keep it away from gas or fire flame. This asphaltum is somewhat slow to dissolve and should be frequently stirred up with a piece of wood. It is better if allowed to soak in the turpentine for a couple of days. Strain the stain and add 1½ to 2 ozs. best gold size to 1 pint of the stain and use the stain cold. If on trial the asphaltum stain is not dark enough for your requirements, purchase from your local paint shop two liquid ounces of drop black ground in turpentine. Add sufficient of the drop black to the asphaltum stain to obtain the desired tone. The oak to be stained need not have been previously damped down, because the turpentine stain will not raise the grain to the same extent as a water stain. If a really good job is required for your personal use by all means go to the trouble of damping down the grain with warm water and then re-glasspaper it. After the asphaltum stain has dried for forty-eight hours, fasten it with a coat of brush polish. When dry ease down with fine glasspaper and wax finish. Alternatively, the job may be filled in for a full finish and completed with french polish. Never use a water basis filler on a water stain without a fastening coat, and never use a turpentine filler on a turpentine stain without the intermediate fastening coat or polish or underlac. Always colour your filler to match your work, otherwise it will show white in the grain. The beginner with no experience will obtain excellent results with Johnson's wood dye, giving a coat of their underlac and then finishing with their wax polish. This is a simple and a positive method. (151)

SUGGESTION COMPETITION — COLONIAL.—When announcing our special Ten Guinea Suggestion Competition in October last year, we offered three special prizes to Colonial readers. The awards now made are as follows:—

FIRST PRIZE, One Guinea, **GEORGE WANDS**, 115, Mowbray Avenue, Benoni, Transvaal, South Africa.

SECOND PRIZE, Half a Guinea, **ALAN G. PORTER**, 21, Eglinton Street, Moonee Ponds, W., 4, Victoria, Australia.

THIRD PRIZE, Seven Shillings and Sixpence, **FRED A. KRAUSE**, Box 53, P.O., Toogoolawah, Bris. Valley Line, Queensland, Australia.

HIGHLY COMMENDED.—**J. ALLARDICE**, Brisbane, Queensland.

CRAFT PROBLEM COMPETITION.—For the best suggestions for jointing a Show Case Corner (see January number, page 5) the three prizes of half a guinea each are awarded as follows:—

C. MACGRAW, 91, Billinge Road, Pemberton, Wigan, Lancs.

A. C. YOUNG, 9, Calvin Road, Winton, Bourne-mouth.

F. HAMMOND, 62, De Grey Street, Hull.

The following are highly commended:—

CHARLES WEBSTER (extra prize of five shillings),

34, Milton Road, Rotherham, Yorks.

H. W. STOKES, **F. P. BIRTWELL**, **M. TEBB**.

FOR THE MARCH and future numbers we have ready, or in preparation, designs for a bedside reading table, cabinet sideboard, Queen Anne bedsteads, service trolley, gentleman's dressing chest and several items of light woodwork. The March number will include an article dealing with built-in kitchen furniture, and our new series on home carpentry will be continued. Please remember to have an order for the regular delivery of THE WOODWORKER placed with your newsagent, as during the spring months there is always a greatly increased demand for copies.

“HOW TO QUALIFY AS A HANDICRAFT INSTRUCTOR.” Send threepence for this useful little pamphlet. Evans Bros. Ltd., Montague House, Russell Square, London, W.C.1.

LIGHT FIRESIDE ARMCHAIR

THE fireside chair lies midway between the full easy and the ordinary chair. It has not the full upholstery of the former but is a great deal more comfortable than the latter. Its advantage is in its comparatively small size. The example given in Fig. 1 could be made up in practically any wood. It has a partly stuffed back and the seat has the full upholstery, deeply sprung. Not a great deal of the framework is hidden so that the whole could be carried out in hardwood. In any case, the hidden rails should be at least of some strong wood such as beech, not deal. The latter has not much strength in itself and does not hold the upholstering tacks well. The chair shown is taken from a model recently made for the Editor.

Make up the back first. The main sizes are given in Fig. 2. The legs finish $1\frac{1}{8}$ in. wide at the front all the way up. In thickness they measure $1\frac{3}{8}$ in. at the seat and taper to 1 in. at the top. The important point is in setting the square part at the seat. The most satisfactory way is to square up a piece of stuff $4\frac{1}{2}$ ins. wide, mark out the position of the seat rail and plot out the upper rake and lower curve from this. If this is done the rake is bound to be correct since the square part is necessarily held vertical by the shoulders of the seat rail. To obtain a good flowing curve for the lower part a lath of wood can be bent to predetermined marks and a pencil drawn along it. All rails are tenoned in with the exception of that at the top, which is fixed above the legs (see Fig. 2). Note that short uprights are fixed to the legs between the two stuffing rails. These are to hold the upholstery. The rails have a backward curve of 1 in. The curve can be worked after the joints are cut.

An enriching effect is obtained by moulding the front legs along their length to the section at Fig. 3. If a suitable plane is not available a scratch can be used. The inner edge is bevelled. There is only one rail at the front.

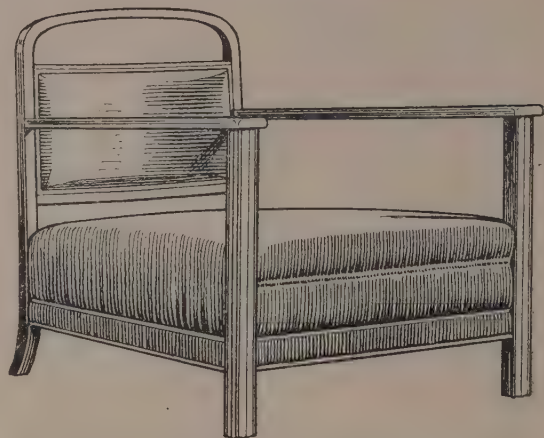


FIG. 1. LIGHT LOUNGE OR FIRESIDE ARMCHAIR.

This has a wide, shallow rebate worked at the front, so that when the upholstery is fixed a narrow strip of show wood appears level with the cover. A plan view is given in Fig. 4. Note that all four legs are square with the front. This necessitates the mortises for the side rails being cut at an angle, as in Fig. 3. The back tenons of the side rails are cut near the outer face so that they do not curtail those of the back rail. The last named also are set near the edge. This is unnecessary at the front. A similar rebate to that at the front is worked along each side rail. It will be realised that the shoulders of the tenons at the top of the front legs must slope downwards slightly towards the back. This is caused by the drop of the arms. In the same way the shoulders at the back of the arms must be at an angle. It is advisable to round over all edges of the arms.

The line of the upholstery is shown in Fig. 2. The webbing is placed on the seat rails. The

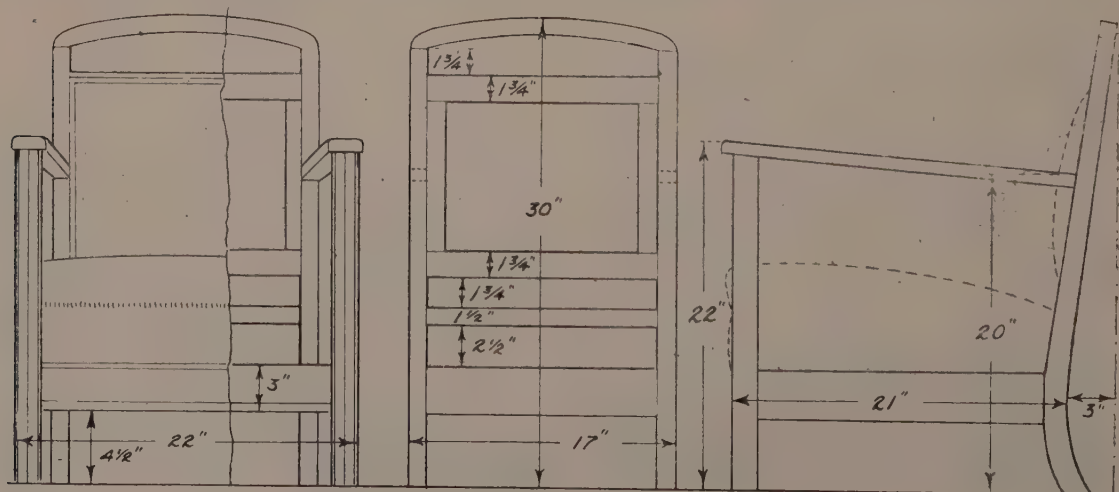


FIG. 2. FRONT, BACK AND SIDE ELEVATIONS OF CHAIR.

stuffing must be pulled well to the edge at the front to obtain a firm edge. There are no springs in the back.

CUTTING LIST.

	Long. ft. ins.	Wide. ins.	Thick ins.
<i>Back.</i>			
2 Legs	2 5½	4½	1½
1 Rail	1 5½	2½	2½
2 Rails	1 5	1¾	2
1 Rail	1 5	1¾	2
1 Rail	1 5	3¾	2
2 Uprights	0 10	1½	1
<i>Front.</i>			
2 Legs	1 10	1¾	1¾
1 Rail	1 10	3¾	1
<i>Sides.</i>			
2 Rails	1 9	3¾	1
2 Arms	1 11½	2½	1

(157)

• "DINING ROOM FURNITURE DESIGNS."—Entirely new edition. (Price 2/6 net.) Evans Bros. Ltd., Montague House, Russell Square, London, W.C.1.

BORING HOLES IN AWKWARD POSITIONS.—Very often in the cabinet and shop fitting trade it becomes necessary to bore holes or drive screws in very awkward positions, such as under the carcase top when inserting screws from the top bearers and in many other positions where it is impossible to use a brace and bit or a screw-driver of medium length. I have overcome the



SIMPLE
DEVICE
FOR
BORING
HOLES.

difficulty by making use of an old brass door knob. The square hole in the knob will accommodate a short screwdriver bit, a short twist dowel bit, or any square-ended boring tool such as is found in the average joiners kit. I find this much more comfortable to handle than the wooden gimlet type handle sometimes made for a similar purpose.—CHARLES H. ASTLE (Burton-on-Trent). (153)

HOW TO MAKE A PENCIL GAUGE.—There are very few carpenters and joiners who are without a piece or two of broken boxwood rule. Here is a way to make use of them. Fashion an elliptical stock as shown in the sketch, and cut through it a mortise to accommodate the broken piece of rule. This stock should fit snugly on to the piece of rule and the mortise should be rubbed with black lead to make it slide nicely. Next, make a small wedge out of another piece of broken rule or other suitable piece of hardwood and widen the mortise so that it fits the taper of the wedge. After having made one or two file marks in the brass at the end of the rule, to allow for the pencil point, the gauge will be ready for use. I have used a similar gauge

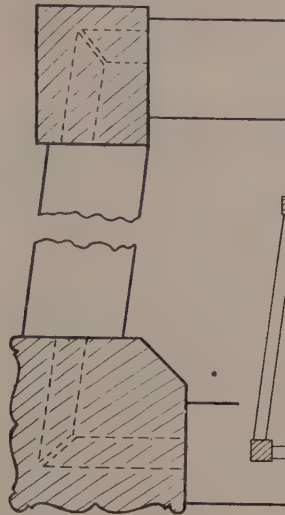


FIG. 3. RAIL JOINTS.

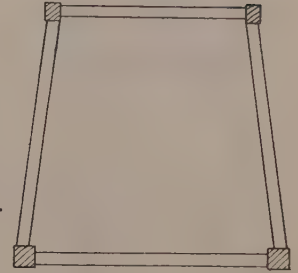
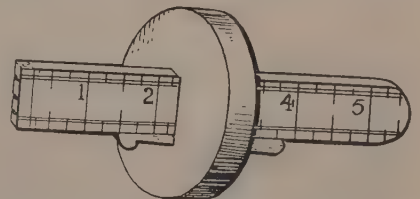


FIG. 4. PLAN AT SEAT.

for some months past and find it is invaluable for marking chamfers and bevels where a marking gauge could not be used. The graduations on the old piece of rule enable the gauge to be quickly and accurately set. Incidentally, wood may be marked to the various widths required

USEFUL
HOME
MADE
PENCIL
GAUGE.



for rails or strips and, as the stock runs on the edge of the wood instead of the fingers, the danger of splinters entering the hand is eliminated.—E. E. FARMAN (Grays). (154)

RECREATION is something that even we woodworkers periodically need, and when our recreation can be shared with others it is all to the good. Read "The Everyday Games Book," by V. C. Alexander, price 2/6 net. For home and outdoor games of all kinds it is the best handbook available. From all booksellers, or 2/9 post free from Evans Bros. Ltd., Montague House, Russell Square, London, W.C.1.

MESSRS. HANDCRAFTS LTD. ask us to mention that the first edition of a hundred thousand copies of their 1930 *Annual* was exhausted some time before Christmas. Since then the *Annual* has been twice reprinted (making 130,000 copies in all). A few hundred copies of the final edition remain (price 1s. each, post free), and, as there can be no further reprint, early application should be made to Handicrafts, Ltd., Lister Works, Weedington Road, N.W.5.

OCCASIONAL BOOKCASE CABINET

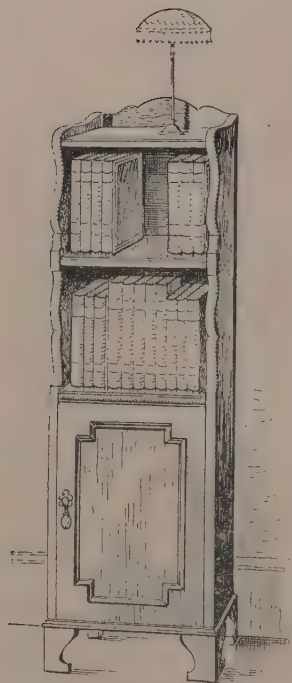


FIG. 1. BOOKCASE CABINET.

4 FT. HIGH, 14 INS. WIDE.

A CONSIDERABLE contribution towards the untidiness of our living room is often caused by the haphazard laying aside of weekly or monthly magazines, partly from habit and partly because suitable provision has never been made for them. The little article under notice might in such cases prove itself of real service, providing as it does a couple of shelves for books and a cupboard in which magazines can be shelved or stood in racks according to individual preference.

Dimensions are 4 ft. high over all, 1 ft. 2 ins. wide and 8 ins. deep, and the bookcase is suitable for making up in oak, walnut or mahogany. If oak

is selected this might for a morning room be finished more to the natural colour of the wood, with a rubber of polish as a final dressing, or the wood might be coloured to a rich nut brown shade and french polished or waxed. In walnut a waxed finish can hardly be beaten as an alternative to french polishing, whilst in mahogany the wood may be stained to a rich plum, or the deeper damson colour, with an egg-shell finish which is often considered to have a more refined result than that obtained by a full bright french polishing.

THE SIDES (A) should be made up of clean and true wood, this being selected specially for its regularity of grain and absence of other imperfections. The outline should be carefully set out, and cut with the edges true and square, grooves being cut for the two shelves and also the cupboard top and bottom.

THE PLINTH RISERS (E), of which eight will be required cut to shape, are mitred and tongued together at angles in addition to blocking, glueing and screwing into position. Alternatively the ends may be kept of a length to continue to the ground with firm result. The height of the cupboard bottom itself would be about 4 ins. above ground, and this will allow ample clearance for the cutting to shape of the bookcase ends. The back edge of ends may also be rebated if preferred, or the carcass back may be screwed on in position to finish flush with the outside of ends instead of rebating.

THE TOP (B) should be dovetailed into position, the joint being stopped back from front edge about $\frac{1}{2}$ in. The second shelf (B) may be either dovetail-grooved or plain-grooved in, in which case a fillet for additional support should be screwed to sides under. The cupboard top (C), again, should be dovetail-grooved in as a general stiffening, whilst the bottom (D) could either be dovetailed or held in position by rebating and screwing.

THE CARCASE BACK will be made up of a wide top rail (F) cut to shape and also grooved on under edge. The lower rail (G) will also be grooved on upper edge for the purpose of receiving the V-grooved matching (H), to be tenoned into them. In a simpler manner this clamped back might be substituted by a plain 5 in. plywood back fitted to screw on flush with the outer edges of ends, remembering to use brass round headed screws where oak is concerned. Both rails or clamps may be dovetailed to ends as noted in Fig. 3 if preferred to plain screwing.

THE DOOR (I) is framed up of stiles and rails to be mortised and tenoned together. A thickness of $\frac{3}{4}$ in. is preferable, although $\frac{1}{2}$ in. in hardwood could be used. The face edge of frame could be worked with a $\frac{1}{4}$ in. ovolo, the panel being rebated in from the back, or the panel could be grooved into position with lengths of $\frac{1}{4}$ in. ovolo section mitred up and applied on face.

Another method of treating the door would be to make it up on a frame of two stiles $1\frac{1}{2}$ in wide by $\frac{1}{2}$ in. thick and three rails of equal substance, all to be mortised and tenoned, bridle-jointed or halved, and carefully screwed up square. This frame would have a facing of plywood, of the particular wood in use, and a backing of birch or other plywood finished flush on edge. Such a door would be improved by edging all round with a $\frac{3}{16}$ in. flat, mitred up and fitted to project about its own thickness, similar to a cocked bead. This will prevent the edges of the plywood splitting away for any reason in course of wear.

CUTTING LIST:—

		Long. ft. ins.	Wide. ins.	Thick. ins.
A	Two sides ...	4 0	8	$\frac{3}{4}$ or $\frac{1}{2}$
B	Two shelves ...	1 2	8	$\frac{1}{2}$
C	One top ...	1 2	8	$\frac{1}{2}$
D	One bottom ...	1 2	8	$\frac{1}{2}$
	Mould ...	1 2.	$\frac{1}{4}$ section	
E	8 plinth shapes (if required) ...	0 4	3	$\frac{3}{4}$ and block-
	Plinth mould ...	3 0	$\frac{1}{2}$ section	
F	One top back rail	1 2	5	$\frac{3}{4}$ or $\frac{1}{2}$
G	One bottom rail	1 2	4	$\frac{3}{4}$ or $\frac{1}{2}$
H	One back filling	3 0	14	$\frac{3}{4}$ or $\frac{1}{2}$
	Matching or plywood to fit.			
I	Two door stiles	1 7	$1\frac{1}{2}$	$\frac{3}{4}$ or $\frac{1}{2}$
	Two door rails	1 2	$1\frac{1}{2}$	$\frac{3}{4}$ or $\frac{1}{2}$
	Panel $\frac{3}{4}$ in. thickness or 5 mm. plywood.			
	One interior shelf	1 2	$6\frac{1}{2}$	$\frac{3}{4}$ or $\frac{1}{2}$
	Two fillets	1 2	$1\frac{1}{2}$	$\frac{3}{4}$ or $\frac{1}{2}$

All lengths are full to allow for paring and fitting. Widths and thicknesses are net. (115)

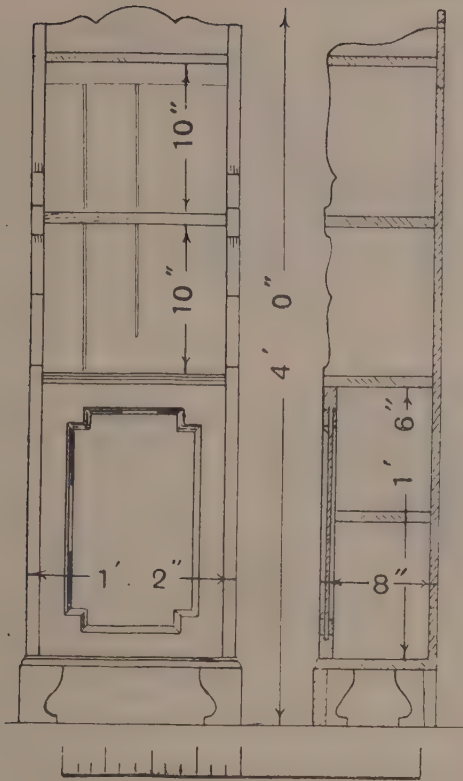


FIG. 2. ELEVATION AND SECTION.

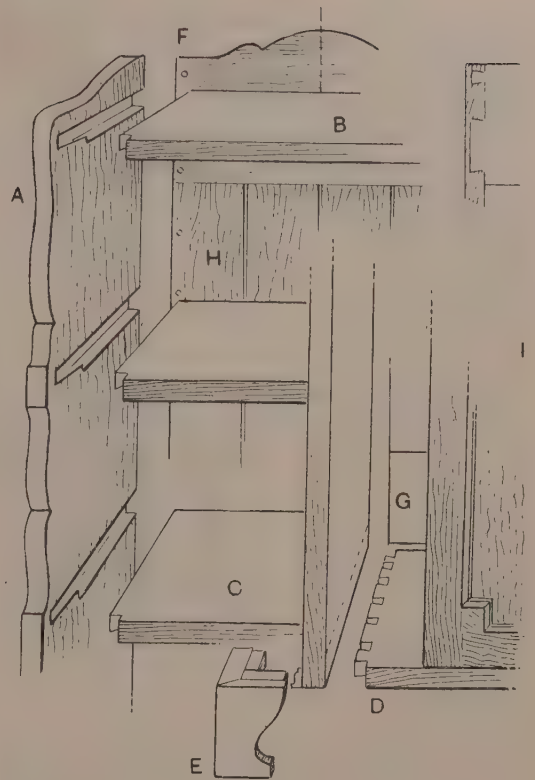


FIG. 3. SHOWING METHOD OF CONSTRUCTION

"CASEIN" GLUE

SOME readers may have noticed in *The Daily Mail* a few weeks ago illustrations of the war galleys of the Roman Emperor Caligula which have been recovered from the mud following the draining of Lake Nemi, near Rome. An examination of the construction of the remains of these vessels will undoubtedly revive the interest in casein glue which was used by the ancients over 3,000 years ago. The famous pleasure ship of the Emperor Trajan which was sunk in Lake Nemi about A.D. 100 was discovered some years ago by the Italian divers, and on the pieces of the hull which were recovered the *canvas* was still glued to the *woodwork* after being under water for over 1,500 years.

The Egyptians, the Greek and the Romans used this indestructible casein cement for glueing their joints and veneers, and a similar composition is to-day used by the woodworkers of Tripoli and Alexandria. The old type of Swiss and German cabinet-maker used and had great faith in casein, and claimed that in it lay the secret of the endurance of his veneered work.

The basis of the casein glue is the dried curd of cow's milk which is pounded with water to thoroughly wash it and to which a small quantity of fine lime is afterwards added.

The cement is somewhat like thin cream cheese and has to be used on the wood within about ten

minutes of being made. According to Bitmead there is a chair frame in the Egyptian room of the British Museum which, upon close inspection, shows that it was put together with a composition of casein similar to that mentioned above. It can be best seen in the joints where the rails are framed into the legs. Casein glues are regularly used for aeroplane work, engineers pattern making, canoe and boat building and joinery and cabinet work. Owing to the fact that the glue is white and that it can be used cold it is specially suitable for light coloured veneers such as satinwood, etc. If used on the large veneered surfaces so fashionable at the moment, many of the veneering troubles would vanish. The makers are the Monite Waterproof Glue Co., of 1636 N. Second Street, Minneapolis, U.S.A., but we do not know of agents in this country. (125)

STEPHENS' GLUE.—Messrs. Stephens, whose inks and dyes are known all over the world, have now on the market an excellent vegetable liquid glue which (without the necessity of heat) is being largely used by woodworkers. It is obtainable from all ironmongers, stationers, etc., in two-penny, sixpenny and ninepenny tubes. It is clean to handle, free from any unpleasant odour, and is useful (in addition to wood) for glass and pottery repairs and for glueing cloth or leather.

A SMALL GARAGE

HERE we give particulars of construction for making two types of garage which will meet the requirements of the small car owner and also conform with most modern by-laws for portable buildings.

The dimensions given provide comfortable working space all round for the average sized car, as well as allowing for a small work bench with vice for executing repairs. This we consider a necessary addition as the small car owner is usually ambitious to carry out his own minor repairs. A well hole to provide comfortable working space under the car is provided.

THE FRAMES.—

Fig. 1 illustrates the wooden type of portable garage, 15 ft. long by 8 ft. wide, 6 ft. high to eaves and 7 ft. 6 ins. to ridge. The structure is composed of a number of 3 in. by 2 in. frames covered with $\frac{3}{4}$ in. tongued and grooved matchboards as shown in Fig. 2. Detail A of Fig. 2 illustrates the front end framing

with arrangements for the doors. The various pieces are housed $\frac{1}{4}$ in. deep where required, and securely nailed together with 5 in. round nails. Care should be taken to keep the pieces flush on the outside to provide a level seating for the matchboards, also to have the frames square before nailing on the matchboards. Failure in this latter respect will cause trouble when assembling.

The covering matchboards should be tongued and grooved and may be either bead or V jointed. They should not be cramped up too tightly when fixing, or subsequent swelling during wet weather will make them bulge off the framing and cause unsightly joints.

Detail C shows the opposite end frame.

It will be observed how the matchboarding is allowed to extend 3 ins. higher than the roof spars on these end frames. This fills up the gap between the roof purlins which are allowed to run through about 6 ins. at each end to carry the ornamental barge-boards.

One of the side frames with window openings is shown in detail B of Fig. 2. These frames are arranged to fit in between the end frames to which they are securely bolted with $\frac{1}{2}$ in. bolts, about three bolts being required at each angle.

WINDOW.—Fig. 3 shows casement window construction. These windows are made from ready moulded and rebated sash stile material. The requisite lengths are first cut off and the vertical stiles are mortised to receive the top and bottom rails and also the horizontal bars. The rails are tenoned and haunched, the tenons being made about two-thirds the width of the rails while the

haunching is cut away behind the tenon to scribe over the stiles as indicated. The rails and stiles are also mortised to receive the bars. The bars too are tenoned where they intersect.

When all joints have been made the casements are glued and wedged up, and if they are going to be hinged to open it is desirable to drill the corner joints for $\frac{3}{8}$ in. pins, the whole then being cleaned off and the casement fitted into the frame. A rebate is formed by nailing a bead round the opening, and a fixed casement is secured by screwing to the framework. Opening casements may be hinged with butt hinges to open outwards.

THE PORTABLE ROOF is probably best arranged by placing two long purlins on each side into the slots provided in the matchboards in the end frames. The purlins are of 3 in. by 2 in. material and 16 ft. long, 6 ins. being allowed to extend the garage at each end. They may then be secured by means of angle irons to the roof

spars on the end frames. The $\frac{3}{4}$ in. tongued and grooved matchboards are cut off to their correct length from ridge to eaves, allowing about 3 ins. overhang at the eaves. The roof may now be made in any number of conveniently sized sections by nailing the matchboards to suitable ledges of 4 in. by 1 in. material. The ledges are arranged to fit along the top edges of the purlins as shown in enlarged sketch, Fig. 4.

The ornamental barge-boards may be made from 7 in. by 1 in. material as in Fig. 5, the various pieces being half-lapped and screwed together (or mortised and stub-tenoned), then finally screwed to the projecting ends of the roof purlins. A capping to turn off the weather is made from 3 in. by 1 in. material; it is grooved on to the top edge and may have a scotia moulding placed underneath to make for better appearance.

DOOR.—A braced, ledged and battened type of door is shown, hinged with hooks and bands to the door posts of the framing. An alternative type of glass framed door is shown in Fig. 7. This, of course, gives a much better appearance.

THE FLOOR may be arranged by any of the three methods indicated in Fig. 6. First by placing 4 $\frac{1}{2}$ in. by 3 in. joists across the bottom rails of the side frames and subsequently nailing $\frac{3}{4}$ in. tongued and grooved floorboards to them in convenient portable sections as described for the roof. This is undoubtedly the best type of wooden floor to lay, as it holds the garage securely in position at the base; but it has the disadvantage of reducing the effective inside height of the garage. The

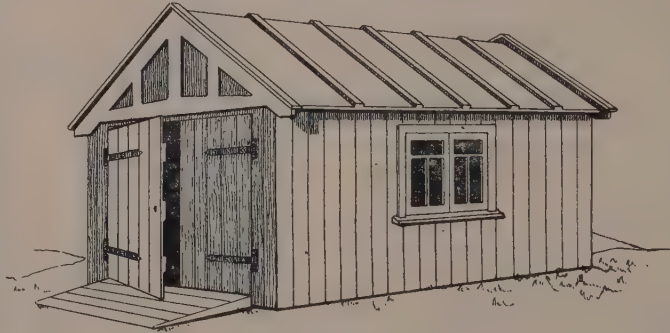


FIG. 1. SMALL GARAGE: SIZE 15 FT. BY 8 FT.
(SEE ALSO ALTERNATIVE DESIGN AT FIG. 7.)

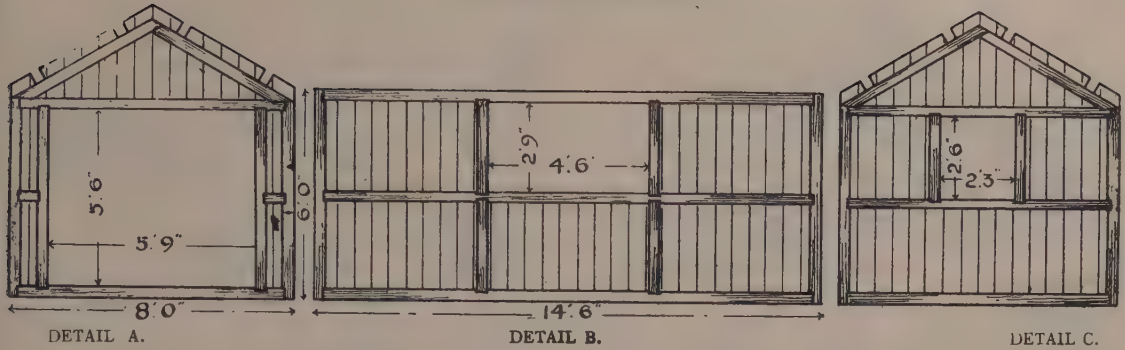


FIG. 2. SCALE DRAWINGS OF END AND FRONT FRAMES—A, B AND C.

side framing should therefore be made 6 ins. higher if this kind of floor is adopted.

The second type of wooden floor illustrated requires heavy sleepers or brickwork on which to place the joists. The floor is then made in portable sections as before and placed on the sleepers. The garage is erected on the floor as shown and the side frames bolted in position. This method leaves the ends of the joists to view, and unless the sleepers are carefully laid an open joint between the floor and the side frames is likely to occur. Of course this can be obviated by allowing the matchboards on the side frames to extend about 6 ins. below the bottom rail and so cover the ends of the joists and the joint between the floor and frames.

The most desirable floor for a garage is concrete, this being impervious to water and grease as well as forming a better foundation. Between it and a wooden floor the difference in cost to a

wooden floor for a permanent garage is almost negligible.

A concrete floor 16 ft. by 9 ft. and 6 ins. thick may be laid by making an aggregate of six parts of clean broken brick or stone (or both) to pass through a 2 in. ring with two parts clean sharp sand to one part cement. First mix all the materials mentioned thoroughly while dry, then gradually add clean water through the rose of a watering can so as not to wash cement and sand away, continually turning the aggregate over with a shovel until a good matrix for laying is obtained. It is not advisable to mix too great a quantity at once; or setting will take place before it can be laid. A level surface is obtained by first fixing pegs in the ground to which a line is fixed. The top surface may then be screeded level with a long straightedge, or, better still, a wooden edge may be fixed to the size of the floor from which to do the screeding.

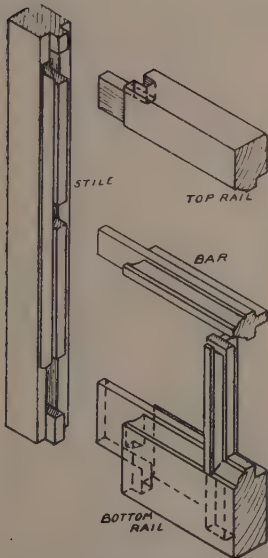


FIG. 3. CASEMENT WINDOW CONSTRUCTION.

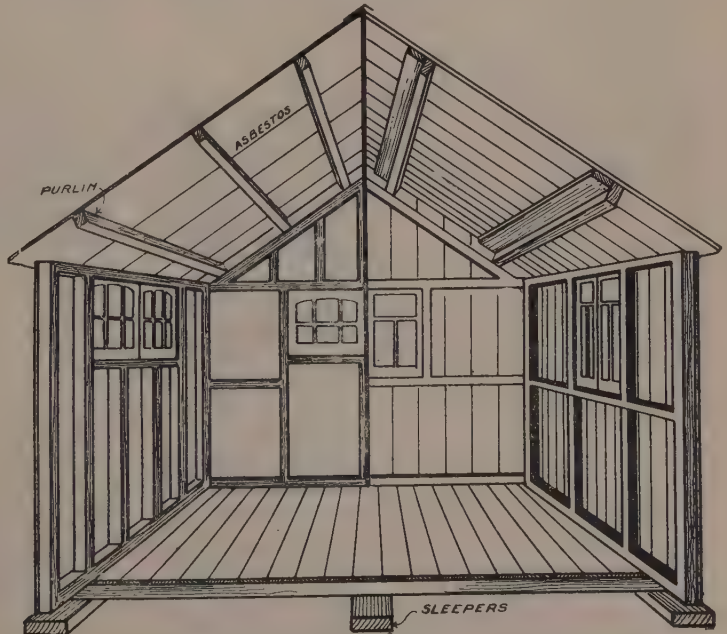


FIG. 4. ROOF FRAMING AND FLOOR ARRANGEMENT.

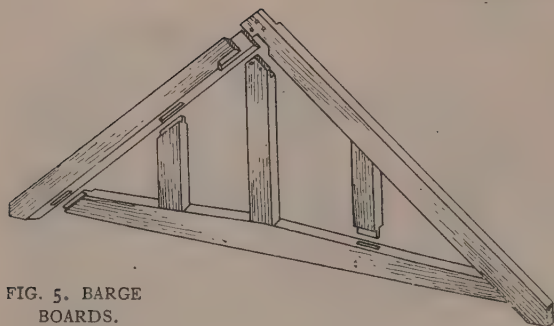


FIG. 5. BARGE BOARDS.

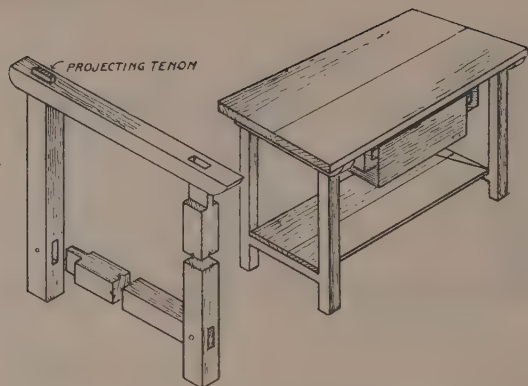


FIG. 8. SKETCH AND DETAIL OF BENCH.

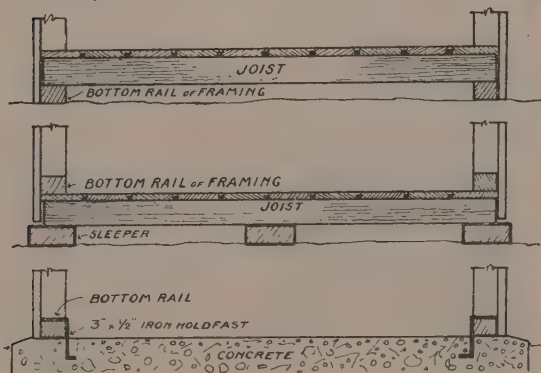


FIG. 6. FLOOR CONSTRUCTION: THREE ALTERNATIVES.

ASBESTOS GARAGE.—An effective style of asbestos garage is shown in Fig. 7. Apart from its better appearance, this is more servicable as a garage structure as it offers facilities for washing the car inside and has the additional advantage of being almost fireproof.

The construction of the framework is practically as already described for the wooden garage, with the exception that more vertical pieces or struts are put in to carry the asbestos sheets. The struts are placed at a distance of about 2 ft. apart, or according to the size of asbestos sheets obtained, so that the sheets will butt up to each other in the centre of each strut. The sheets may be cut to length and all trimming done with an old handsaw. The sheets are then fastened to the struts with clout nails and the joints subsequently covered with strips of wood about 2 ins. wide by $\frac{1}{4}$ in. thick. These strips can be arranged in ornamental designs upon the surface of the sheets.

The floor is arranged by one of the methods described for the wooden garage, while the roof may be either of wood matchboards covered with

felt and arranged in portable sections, or may be of asbestos sheets which are fixed to three long purlins resting on the roof spars at each end of the shed as in Fig. 4. The joints of the sheets would then be covered with strips of wood similar to those used for the sides, and ridge tiles would be necessary to cover the joint at the apex of the roof.

The barge boards for this style of garage are simple boards butt-jointed at the top and slightly shaped at the bottom, and are fixed by screwing to the ends of the purlins. The ornamentation of these gables will be formed by the strips of wood on the asbestos sheets.

The doors are of the framed and ledged type with arrangements for glass in the upper portion and hinged with ornamental books and bands.

A BENCH on which to do minor repairs is shown at Fig. 8, and is composed of two frames mortised and tenoned together as indicated in detail.

These form the legs and are held at any convenient distance apart by screwing a bottom shelf to the cross rails and by a bench top which is securely screwed to the top rails.

The legs are of 2 in. by 2 in. material and about 2 ft. 6 ins. long. The tenons on the legs are allowed to project through the mortises in the top rails about $\frac{1}{4}$ in. The bench top, which is made from two pieces of 11 in. by 2 in. material about 3 ft. 6 ins. long, is then mortised to receive them. A drawer may be fitted with runners underneath the bench top for storing tools, etc. (144)



FIG. 7. ALTERNATIVE DESIGN FOR ASBESTOS GARAGE.

If YOU WISH to learn French, there is nothing so useful as the weekly paper *La France* (8 pages, 2d.), from Newsagents, or from Evans Brothers, Ltd., Montague House, Russell Square, London, W.C.1.

HANDICRAFT CENTRE NOTES

It is at the beginning of February that those students who are preparing for the Handicraft examination which is to be held in May should settle down to at least two hours per day of intensive study. The subjects are wide, and as the science questions are far from easy to be forewarned is to be forearmed.

To do neat and accurate practical drawing good set squares, etc., are necessary and it is false economy to buy cheap pencils. Hexagonal pencils are recommended because they are not liable to roll off the desk or table, and the student is advised to buy the following grades: one H B for general work and free sketching one H and one H H for geometrical drawing. The pencil used for sketching may have a round point, but those used in conjunction with the T and set squares answer better and wear longer if they are sharpened to a chisel point. The chisel pointed pencils may be kept to a fine edge by an occasional rub on a piece of No. 0 grade glass or emery paper, and this will save time and obviate the necessity of a two frequent washing of the fingers. The most convenient size of drawing paper for practice should measure approximately $21\frac{1}{4}$ ins. by 15 ins. and may be of a medium quality. Always use the front (never the back) of the drawing paper.

In the accompanying illustration we give an

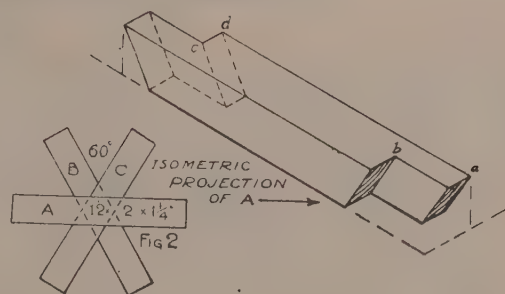


FIG. 2. THREE-PIECE LAP JOINT.

ISOMETRIC VIEW OF
PIECE A OF FIG. 1.

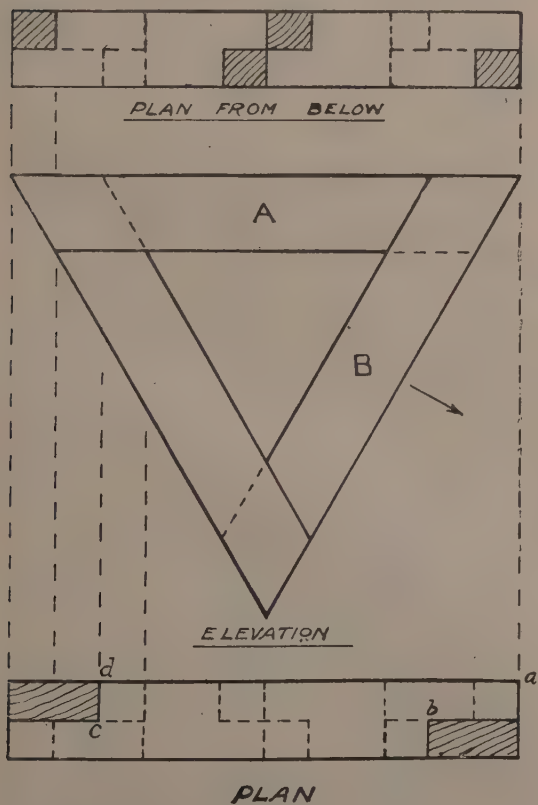
elevation of a triangular frame standing on its apex, each joint being of the half-lap type. Each side of the triangle measures 10 ins. and the thickness of the wood is $1\frac{1}{4}$ ins. The reader is advised to work through this problem to half scale, and, in addition to the drawing given, he should carry it a step further by projecting an edge view of the piece B (see arrow). An isometric projection of the piece A is also shown above, and index marks have been given for the student to carry out the work.

Bear in mind that it is useless to simply look at the drawings. If you really desire to visualise and become master of the various projections the only thing to do is settle down and actually work out the problem without any reference to the text or illustration.

At Fig. 2 is suggested another problem that has not yet been asked, viz., the lap jointing of three pieces of wood as used on wheel construction. Get down to your bench work and actually make this model, after which draw the elevation as at Fig 2 and proceed to project and draw an edge view of each of the three pieces A, B and C. After this you may with advantage draw either conventional isometric views, or isometric views drawn by using the isometric scale of each of the three pieces when separated. Pick what you consider to be the best position for these three pieces so that you show them to the best advantage.

With regard to the triangular frame problem you should be able to draw and complete this with the isometric view of piece A in forty minutes, otherwise you will be too slow for examination work. In fact, the student who worked out this problem took exactly thirty-three minutes to finish it in pencil, every projection line being shown. In inking in the drawing we have purposely missed out some of the projections.

The last day for receiving designs and specimens of practical work in cabinet making is April 23rd, and the last day for carpentry and joinery specimens is May 14th. All goods should be securely packed in cases with screwed lids and should be dispatched at least a week previous to the closing dates. Remember that you get nothing for being late. The last date on which your local secretary can receive your entry is March 10th.



TRIANGULAR FRAME WITH HALF-LAP JOINTS.

DRAWER CONSTRUCTION

IN THE HANDICRAFT CENTRE

BEFORE one can travel very far in cabinet making, the need of a knowledge of drawer construction makes itself apparent and information on this should prove valuable to the amateur woodworker. The writer knows of no other portion of cabinet making which causes more embarrassment than this, hence the purpose of the following hints and suggestions.

As in all other constructional designing, a drawer has essential features which must be adhered to. First and foremost it must fit the carcase for which it is intended. Then it should allow of easy and smooth running when withdrawn and closed. The average drawer should be so made as to be manipulated with one hand. This is a test which is frequently applied when examining a drawer. A drawer should also enhance the general scheme of design of the cabinet or article of which it is a part.

Bearing the above essentials in mind one should exercise great care in the selection of materials to be embodied in the drawer. The wood should be thoroughly well seasoned and as dry as possible. Lack of attention to this important detail is the cause of most of the trouble with badly fitting and running drawers. In selecting the wood for the front the value of the grain from its æsthetic standpoint should receive due consideration, care being taken to ensure that it harmonises with the general scheme of design.

Assuming that the best of materials have been obtained and due consideration given to the

features enumerated above we may proceed to describe in detail the making of a drawer in the traditional cabinet maker's manner.

PLANING.—First proceed to plane up the front, back and sides to thickness, finishing off the inside by scraping and papering. It is important at this stage to ensure that the grain of the sides runs from front to back; this feature assists considerably when the final cleaning up is made. Shoot all bottom edges, taking care to indicate these by the usual face-edge mark.

Plane the sides to width until they fit the carcase and slide sweetly but not too easily. These should now be pinned together and shot to length.

Attention must now be paid to the front. This is planed to fit its opening at the bottom and ends. We have known beginners plane the edges to a slight taper, thinking that this will lead to a tightly fitting drawer; invariably this is *not* the case and you must resist the temptation unless you wish to be disillusioned.

Having prepared the front to a fit, place it upon the back, which should be approximately $\frac{1}{8}$ in. narrower, mark off and cut to length of the front.

GAUGING.—Our material is now ready for assembling as a drawer. We may first deal with and illustrate a drawer of first class construction.

Experience has taught us that the traditional lap-dovetail joint is the best to use for joining the sides to the front. Assuming that we are using a $\frac{3}{4}$ in. front, set the cutting gauge to $\frac{1}{4}$ in.

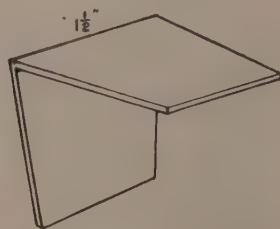
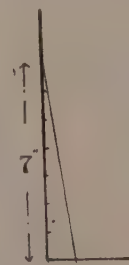
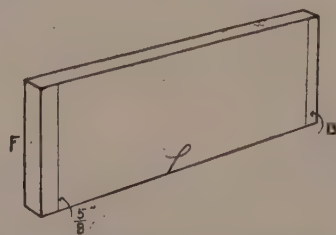
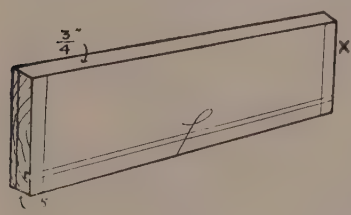


FIG. 1. DRAWER FRONT: MARKING WITH CUTTING GAUGE. FIG. 2. DRAWER SIDE: MARKING WITH CUTTING GAUGE.

FIGS. 3 & 4. DOVETAIL TEMPLATE.

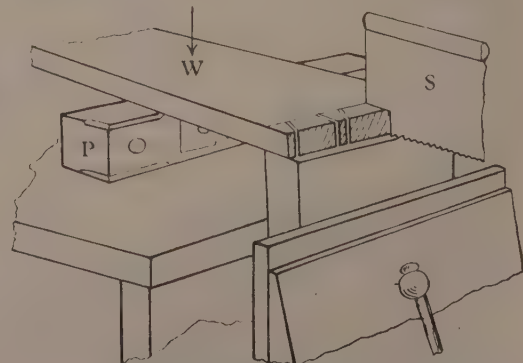
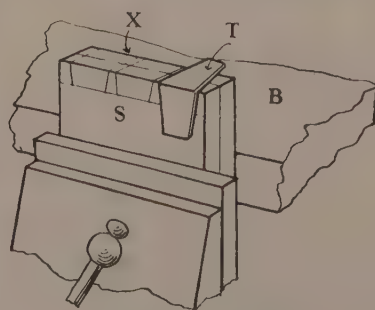
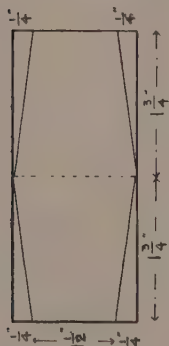


FIG. 5. PLAN OF DOVETAIL TEMPLATE.

FIG. 6. MARKING DOVETAILS. B, BENCH TOP; S, SIDES PINNED TOGETHER; T, TEMPLATE; X, LINES SQUARED ACROSS.

FIG. 7. MARKING PINS WITH DOVETAIL SAW. P, JACK PLANE; S, SAW; W, LEFT HAND OR WEIGHT.

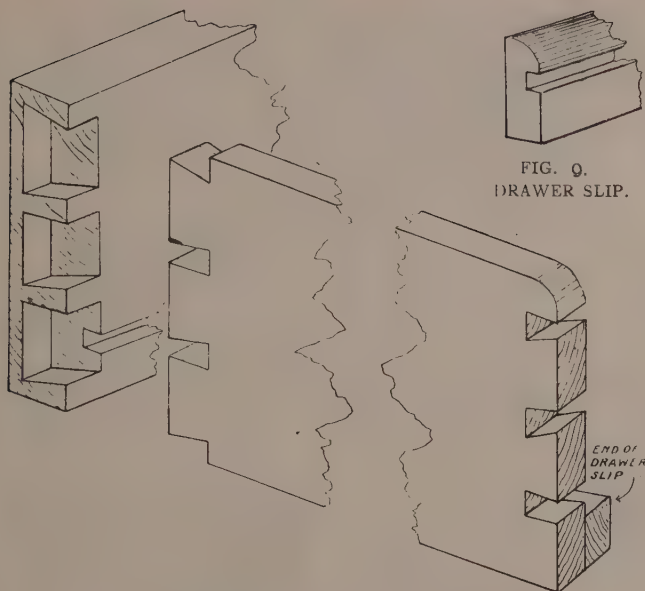
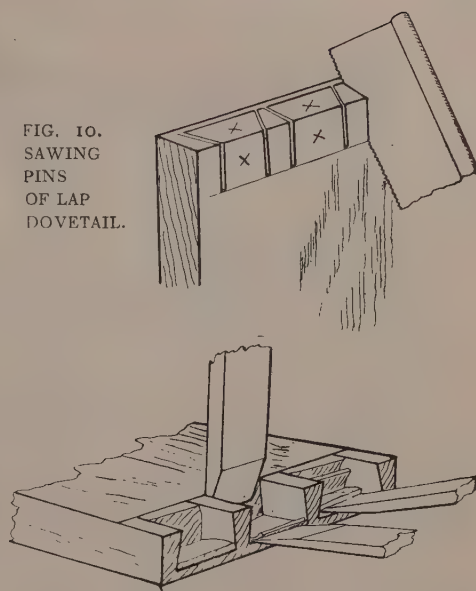
FIG. 9.
DRAWER SLIP.FIG. 10.
SAWING
PINS
OF LAP
DOVETAIL.

FIG. 11. REMOVING WASTE BETWEEN PINS.

FIG. 8. DOVETAILED FRONT AND SIDE OF DRAWER.

and gauge the end grain of the front from the inside, also all round the front ends of the sides. (see Figs. 1 and 2).

Setting the cutting gauge to slightly less than the thickness of the sides, gauge the inside ends of the front, and the outside and inside ends of the back. Do not gauge the edges of the back. Next set the gauge to the thickness of the back, and gauge the back ends of the sides on the sides only and not on the edges. The bottom will be ploughed into the front, so at this stage it is best to run the cutting gauge along the inside of the front to cut the fibres and prevent the plough from tearing the grain should it be at all curly. The gauge should be set to the distance the top surface of the drawer bottom is from the bottom of the front—say, $\frac{1}{8}$ in. The front may now be ploughed with a suitable iron $\frac{1}{8}$ in. deep (see Fig. 1).

DOVETAILING.—For setting out the dovetails, a useful gadget (*i.e.* a dovetail template) can be made from a piece of sheet mild steel cut and bent as Fig. 4. Of course a sliding bevel can be used for this purpose, but the writer has found that the template is very much more easily manipulated than the sliding bevel, this being especially so when smaller drawers of thinner material are being made. The template can be made in very few minutes and can be utilised for all dovetail work; thus care should be taken of it once it is made. Fig. 3 shows how the dovetail angle is obtained, whilst a detail plan of the template is given at Fig. 5.

The sides, still pinned together with their insides together, are placed carefully in the bench vice. Space out the dovetails, using the template to give the required slope. Square across the end grain (X, Fig. 6). The back ends of the sides may be treated in a similar manner,

due allowance being made for the width of the back and the distance the top surface of the bottom is from the bottom of the opening.

Great care should now be taken with the cutting of the tails, the saw kerfs being made in the waste to be occupied by the pins. Exercise extreme care in controlling the saw so as not to cut past the mark gauged with the cutting gauge. Do not as yet remove the waste to be occupied by the pins. The sides may then be separated.

The lap-dovetails are now marked from the sides in the following manner. Place the drawer front in the bench vice, inside towards the bench; let it protrude above the bench top a distance approximately the thickness of your jack plane. Place the front end of the side in the exact position it will occupy when the joint is completed, the back end of the side to rest upon the jack plane placed sideways on the bench. Place a weight or your left hand on the side to hold it steady. Insert the dovetail saw in the kerfs already cut and pull it towards you (Fig. 7).

By this method one gets the pins correctly marked on the end grain of the front. Square the wide end of each pin down the inside of the drawer front as far as the gauged line. The only precaution now necessary is to remember to leave in the whole of the marks made on the end grain, in other words cut on the waste side of the saw marks. It will be observed that only a portion of the sockets on the end grain of the front can be sawn out seeing that a lap dovetail is being employed; the remainder must be carefully removed with the chisel. The back may be marked and cut in a similar manner, though in this case the pins may be sawn through to the gauged line. Now remove the waste material from the front, sides and back (See Fig. 11).

ASSEMBLING.—We are now ready to try the

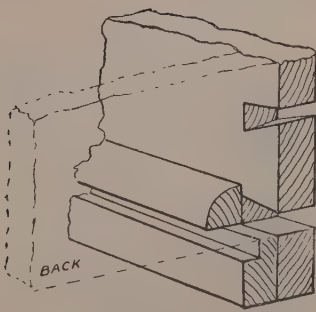


FIG. 12.
ROUNDED PART OF
SLIP CUT AWAY TO
RECEIVE BACK.

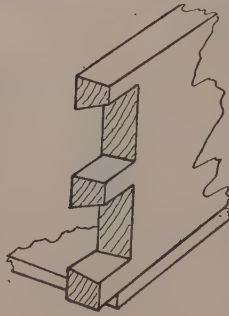


FIG. 13.
PLYWOOD BOTTOM
NAILED OR
SCREWED ON.

various parts, which may require easing a little in places. It is sometimes advisable to take a little off the edges of the dovetails on the insides of the sides to give them a lead. See that the sides enter the front and back. Use a piece of wood as a cushion upon which to tap with a hammer so that the surfaces of the drawer are not bruised when tapping the pieces home.

GLUEING.—The pieces may now be dismantled ready for glueing. Prepare fresh glue and apply it while quite hot, to the pins on the front and back. This must be done expeditiously, otherwise the glue will chill, thus spoiling the adhesive properties of the glue. It is sometimes advisable to warm the dovetails to overcome this chilling difficulty; particularly is this the case should the workshop be at all cold. Remember that hot glue acts as a lubricant.

Make sure that all joints are home and continue to hammer slightly to spread the wood already softened by the glue; this will ensure a close joint. Surplus glue may now be washed off, though care must be taken with this operation or stains may appear on the drawer wherever the hot water is applied. Sometimes the surplus glue is allowed to assume a jelly form and is then removed by a scraping process, but the hot water method has the advantage that, should the drawer have been bruised in the assembly, the water will swell the fibres, and when the final cleaning up is done the bruises will disappear. Before leaving the drawer to set ensure that it

is square by testing from the front inside with a large try-square or measuring the diagonals and gently tapping the drawer until they are equal. The work should now be placed on one side to allow the glue to set thoroughly. At least twelve hours should be allowed for this.

THE BOTTOM.—Having got thus far we may now concentrate our energies upon fixing the bottom. Nowadays this is usually made of three-ply. The front is already ploughed for the three-ply, but the sides must support the bottom as well. Should they be thick enough these may be ploughed as well, but assuming that $\frac{1}{4}$ in. or $\frac{3}{8}$ in. sides are used we call in the use of a "slip" (Fig. 9). This slip must be placed the full length of the sides from the inside of the drawer front to the extreme back end of the sides. The rounded portion of the slip must now be cut off the thickness of the drawer back from the back-end of the slip. (See Fig. 12).

The slip may now be glued and pinned to the sides. It will be observed that the bottom surface of the slip together with the bottom edge of the sides forms a good broad wearing or "runner" surface. On this account it is advisable to obtain or work the slip in some hardwood. For the bottom procure some $\frac{3}{8}$ in. or $\frac{1}{2}$ in. three-ply, the thickness depending upon the size of the bottom. Plane one edge perfectly straight—to form the front edge of the drawer. Measure the required width, allowing for the bottom to fill the grooves of the slip along the sides, and plane the bottom very slightly under this measurement. The size from front to back must next be measured, this allowing for the groove in the front to be filled and the bottom to reach the back surface of the back. Plane to correct size and fit, nailing or screwing upwards through the three-ply into bottom edge of back (Fig. 13).

The drawer now requires easing to the carcass until it will fulfil the one-hand test, though care should be taken that too much material is not removed from the sides, or ugly gaps will appear when the drawer is home. To complete the work all that is necessary is to fix the stops. The better plan is to place them at the back, against the ends of the sides, though they are frequently placed on the bearer rail of the carcass for the front to stop in its proper position. The latter method, however, places an undue strain on the dovetails.

(164)

Stripping Oak

O. T. J. (Wrexham) has purchased a second-hand oak bedroom suite and wishes to know how to strip the old polish off the surface.

REPLY.—The simplest method is to paint the work with a liberal coat of pyrol paint and varnish solvent. Allow this stripper to stand on the surface from ten to twenty minutes, after which the old polish will assume the consistency of soft jelly and may then be scraped away with a dull steel scraper. When the work has been stripped allow it to stand for a day, afterwards

glasspapering down any roughness that has appeared. You may then stain your work to a Jacobean or intermediate shade, filling-in and re-polishing the suite by the usual french polish and spirit varnishing methods. Strong liquid ammonia will also act as a stripper, but if this is used the job should be tackled out of doors, care being taken to prevent the fingers and the eyes being attacked by the liquid ammonia or its fumes. Stripping invariably darkens oak, so it will be practically impossible for you to re-polish it to a very light shade.

(156)

THE WOODWORKER

VOLUME XXXIV.

MARCH, 1930.

NO 436

KITCHEN OR LIVING ROOM CABINET

THIS kitchen cabinet occupies limited space, yet gives ample accommodation for the various items needed in the preparation of meals. Colonial readers, who are as a rule exceptionally keen on labour saving devices, will appreciate the advantages of such a cabinet, especially men who, from necessity or choice, do their own housekeeping.

Over all sizes are 3 ft. 0 ins. wide, 1 ft. 3 ins. deep, and 5 ft. 9 ins. high. The upper cupboard is intended for the storage of service ware, groceries and foodstuffs. The usefulness of the pull-out shelf is obvious. It may, of course, be used as a working kitchen table, although the design for an independent kitchen table, for use with the cabinet, will be given in a later issue. The advantage of a pull-out shelf over a fall flap is in being able to push the shelf back at any time without disturbance to articles on it—provided that such articles clear the underside of the cupboard. The left-hand drawer is intended for linen and the right for cutlery. In the lower cupboard the top shelf would hold mixing bowls, graters, dishes and moulds, while at the bottom, saucepans, cake-tins, etc., could be stored. In Fig. 2 a pastry-board, size (16 ins. by 12 ins.) is shown stowed away behind the right-hand door.

TIMBER.—Naturally the timber chosen would be inexpensive, much depending upon the locality and market. Deal, pitch, pine, whitewood or magnolia are all suitable and cheap. Colonial woods suggested are kauri, Oregon pine, Canadian ash, beech or birch. For tropical climates, well seasoned oak or chestnut would be preferable. Most of the wood required is from 1 in. stuff, usually finishing when papered about $\frac{3}{8}$ in. thick. If the local joiner will joint, plane and cut the wood to the finished sizes given much preliminary work will be saved. Use $\frac{1}{2}$ in. thick Oregon pine or similar plywood for door panels, drawer bottoms and back. If the cabinet is used for the living room, a timber which would serve the purpose well is Japanese oak, a wood that can at present be obtained in excellent quality.

THE CONSTRUCTION is comparatively simple. The ends (F), top (G) and bottoms (H) should be first prepared by jointing two boards, the joints being dowelled or cross-tongued. Cross cut to the net sizes given and work rebates in the ends to take the back. The bottoms (H) are dovetail-housed to the ends, stopping 1 in. from the front edge (Fig. 7). They might be simply housed and glued in, but dovetailing is better. The top is

lap-dovetailed to the ends. Before final assembly prepare a frame for the drawers to run upon, the runners (N) being stub-tenoned to rails (M). Connect both rails (M) with a vertical division piece (Q) which should be tenoned through rails (M, Fig. 8). The drawer frame is housed to the ends. In the final assembly the drawer frame and bottoms are glued in before the top.

THE DOORS are mortised and tenoned together. In preparing the strips, an extra $\frac{1}{4}$ in. should be

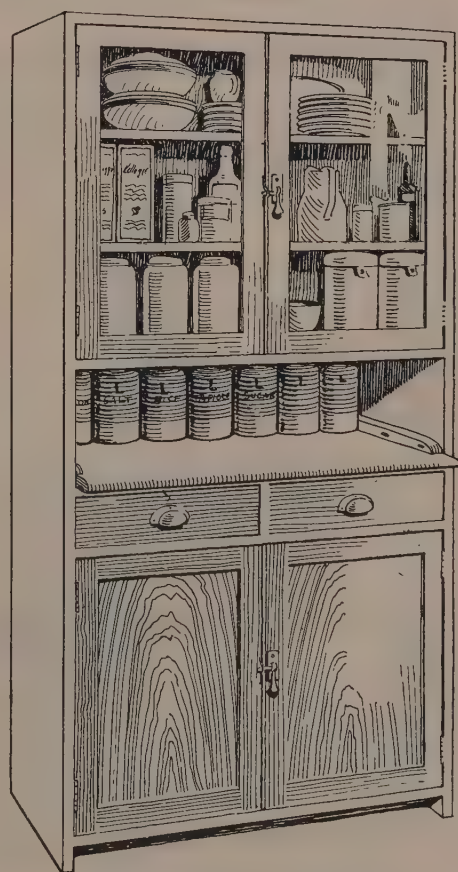


FIG. 1.—KITCHEN CABINET.
HEIGHT, 5 FT. 9 IN. WIDTH, 3 FT.

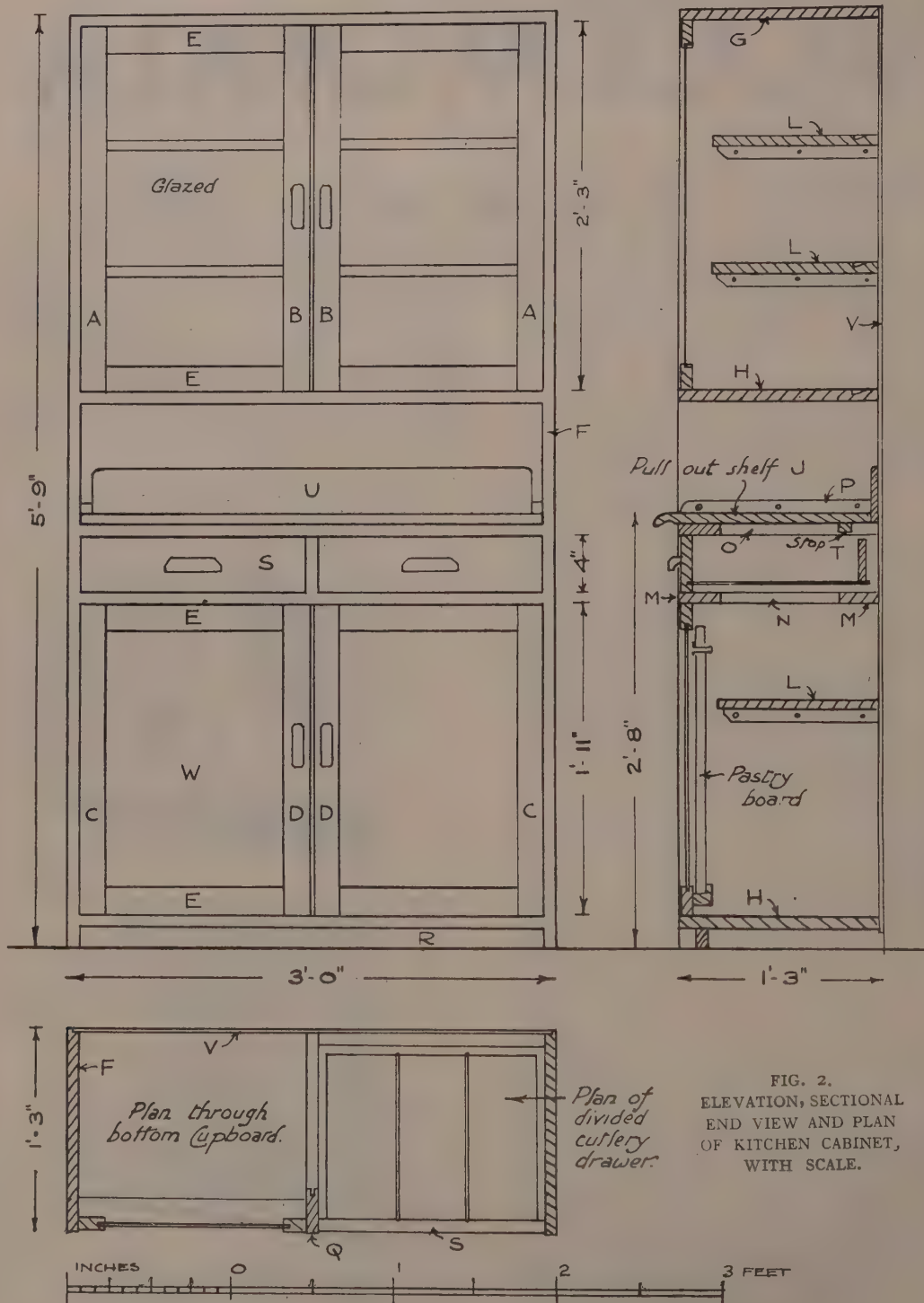


FIG. 2.
ELEVATION, SECTIONAL
END VIEW AND PLAN
OF KITCHEN CABINET,
WITH SCALE.

allowed for the fitting of the doors when together. Rebates are worked in the top pair for glass, while in the bottom pair a $\frac{1}{4}$ in. by $\frac{3}{8}$ in. deep groove is run through on the inside edges for the plywood panels (Fig. 3). The meeting stiles are wider to allow for the closing bead and rebate (Fig. 4).

Door panels should be glued up with the door frames. The glass is beaded or puttied in (Figs. 3 and 4). The top doors might be made to slide, in which case they should be $\frac{3}{8}$ in. shorter and fitted as shown in Fig. 6.

THE DRAWERS are made up in the usual way, the sides being lap-dovetailed to the fronts and through-dovetailed to the backs. The right-hand drawer might be divided for cutlery as in plan (Fig. 2).

THE PULL-OUT SHELF may be in solid wood (clamped at each end), or inplywood. If solid, take the tenons through clamp. This shelf should run easily, and a little candle-fat applied where friction occurs will help matters considerably. The shelf is kept in position by kickers (P), and a ledge (J) is screwed to the back edge. A stop (T) is fixed to underside of this shelf to prevent it being pulled right away from carcase (Fig. 2).

The fixed shelves (L) rest upon bearers screwed to the ends. The riser (R) is set in a little way from the front at the base, as in Fig. 2.

THE BACK (V) may be in plywood or matchwood. The plywood if not obtainable in one piece might be in two pieces, the joint occurring behind the top cupboard bottom (H). Each door is hung on a pair of $2\frac{1}{2}$ in. brass butt hinges and each fitted with a ball catch at the bottom. Fit one small bolt behind each left-hand door and an automatic metal catch handle (say, Tonk's patent slam) to the right door.

Hardwood may be stained a golden or dark brown and varnished; soft woods, as deal, white-wood, etc., could be well primed and enamelled.

CUTTING LIST:—

		Long. ft. ins.	Wide. ins.	Thick. ins.
A	2 Door stiles	2 3	2	$\frac{7}{8}$
B	2 Ditto	2 3	2 $\frac{3}{8}$	$\frac{7}{8}$
C	2 Ditto	1 11	2	$\frac{7}{8}$
D	2 Ditto	1 11	2 $\frac{3}{8}$	$\frac{7}{8}$
E	8 Door rails	1 4	2	$\frac{7}{8}$
F	2 Ends	5 9	15	$\frac{1}{8}$
G	1 Top	2 11 $\frac{1}{2}$	14 $\frac{1}{2}$	$\frac{1}{8}$
H	2 Cupboard bottoms	2 11 $\frac{1}{2}$	14 $\frac{1}{2}$	$\frac{1}{8}$
J	1 Sliding shelf	2 10 $\frac{3}{4}$	15 $\frac{1}{2}$	$\frac{1}{8}$
	2 Clamps	1 3 $\frac{1}{2}$	2	$\frac{1}{8}$
L	3 Shelves	2 10 $\frac{3}{4}$	12 $\frac{1}{2}$	$\frac{1}{8}$
M	3 Rails	2 11 $\frac{1}{2}$	3	$\frac{1}{8}$
N	3 Runners	0 9 $\frac{1}{2}$	2	$\frac{1}{8}$
O	2 Runners	1 0	1	$\frac{1}{8}$
P	2 Kickers	1 2 $\frac{5}{8}$	1	$\frac{1}{8}$
Q	1 Drawer division	0 5 $\frac{5}{8}$	3	$\frac{1}{8}$
	1 Drawer guide	1 0	4	$\frac{1}{8}$
R	1 Riser	2 11 $\frac{1}{2}$	1 $\frac{1}{2}$	$\frac{1}{8}$
S	2 Drawer fronts	1 4 $\frac{3}{4}$	4 $\frac{3}{4}$	$\frac{1}{8}$
T	1 Stop	2 6	4 $\frac{3}{4}$	$\frac{1}{8}$
	4 Drawer sides	1 2	4 $\frac{3}{4}$	$\frac{1}{8}$

		ft. ins.	ins.	ins.
2	Drawer backs	1 4 $\frac{1}{2}$	3	$\frac{1}{8}$
6	Shelf bearers	1 0 $\frac{1}{2}$	1 $\frac{1}{2}$	$\frac{1}{8}$
U	1 Shelf ledge	2 8 $\frac{1}{2}$	4	$\frac{1}{8}$
V	1 Carcase back	5 7 $\frac{1}{2}$	35 $\frac{1}{2}$	$\frac{1}{8}$
W	2 Door panels	1 7 $\frac{1}{2}$	13 $\frac{1}{2}$	$\frac{1}{8}$
	2 Drawer bottoms	1 4 $\frac{1}{2}$	14 $\frac{1}{2}$	$\frac{1}{8}$
	2 Drawer divisions	1 1 $\frac{1}{2}$	3	$\frac{1}{8}$

All sizes are net, excepting drawer fronts and sides where $\frac{1}{8}$ in. is allowed for fitting. (177)

CABINET DESIGNS.—*New and revised edition.*

This new issue (just published) of a favourite book of furniture designs includes gramophone cabinets of the console, pedestal and horizontal type, a combined gramophone and wireless cabinet, several types of china and display cabinets in Jacobean, Queen Anne and other styles, corner cabinet, sideboard cabinet, bedroom, medicine, smoker's and writing cabinets, curio cabinet, kitchen cabinets, etc. Full details and cutting lists are included. Crown 4to., 48 pages, price 2s. 6d. net. Evans Bros., Ltd., Montague House, Russell Square, London, W.C.1.

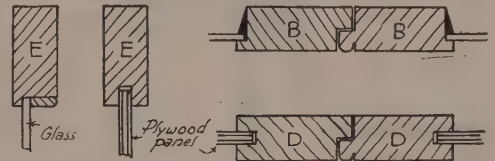


FIG. 3.—DOOR SECTIONS. FIG. 4.—MEETING STILES OF DOORS.

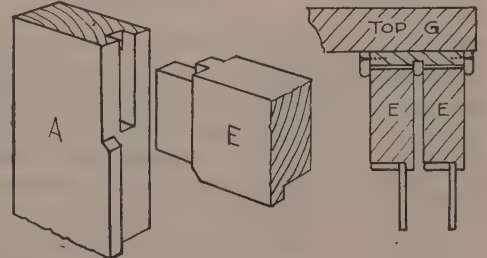


FIG. 5.—DOOR JOINT. FIG. 6.—SLIDING DOORS.

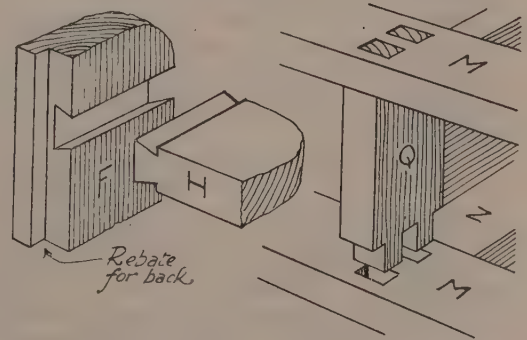


FIG. 7.—DOVETAILED BOTTOM. FIG. 8.—DRAWER DIVISION.

TWO LIGHT SERVICE WAGONS

(A) TWO DECK AND (B) THREE DECK

FOR the smaller home a very useful addition is the light service wagon, two simple designs for which are shown and described here. Any hardwood is suitable, but mahogany or walnut is suggested for design (A) Fig. 1, and oak for design (B) Fig. 2. Stain a deep plum colour and full polish the mahogany. For oak use a rich warm vandyke brown stain and finish with brush polish. Rub down carefully and apply the polish sparingly. A glass top may protect the upper deck. See Figs. 3 to 7 on next page.

THE CONSTRUCTION is similar in both designs. The legs (A) should finish a full $1\frac{1}{2}$ ins. square and may be turned or chamfered (Fig. 3). If the maker prefers the turned leg he will note that the taper springs from about half way up, the leg being the same diameter at the

bottom for half the distance up. This gives a sturdier appearance than if the taper is carried straight from the bottom to top (Fig. 3). In design (B), Fig. 2, the legs are prepared from $1\frac{1}{2}$ in. squares, finishing $1\frac{1}{2}$ ins., the corners being slightly rounded. Place the legs together and strike off the length and the position of the mortises for the rails. Inch tenons are allowed.

All the rails for design (A) should be channelled the full length inside to take the decks (D) and also the top edge rounded before assembling. The ends should be glued up together first and allowed to set.

Prepare the decks from well seasoned solid wood or from $\frac{1}{2}$ in. plywood. Stub-tenon them to the front legs (Fig. 6) and notch round the back legs. In design (A) the decks should be left dry in the channels when making the final assembly.

In design (B) round the edges, glue the front stub tenons to the legs, afterwards screwing the

decks to the rails from beneath (Fig. 7). It would help in the assembly of this three-decker to have the job upside down on the bench so that the decks rest upon the rails, the screwing being done after the job is glued and well cramped up together. If plywood is used for the decks it will be necessary to cover the edges with a half-round bead or some decorative charrier moulding (Fig. 7).

The sizes given are the usual standard sizes for this class of article, but they may be varied to suit individual requirements.

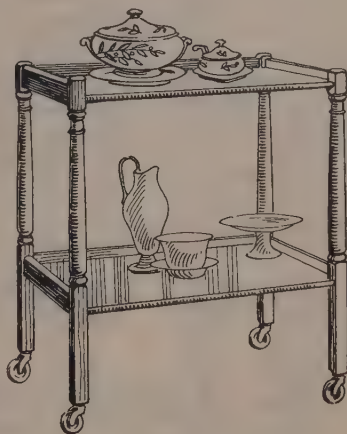


FIG. 1. SERVICE WAGON (DESIGN A). (TWO DECK).

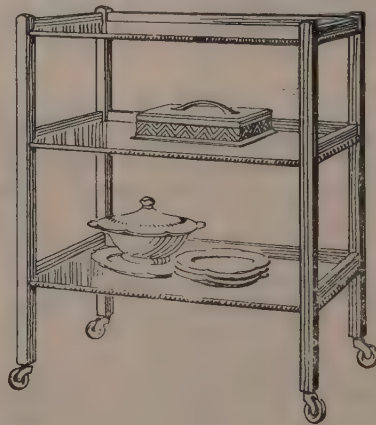


FIG. 2. SERVICE WAGON (DESIGN B). (THREE DECK).

A standard size rubber tyred castor is shown which can be obtained easily from a firm such as the South London Wheel Works (Dept. W.), New Kent Road, S.E.1. The height is 2 ins. from floor to the bottom of leg and the wheel diameter approximately $1\frac{3}{4}$ ins.

If a glass top is added take the length measurement from between the legs, adding small wood fillets between the legs at each end flush with the top of the glass, as the cutting of the glass to fit round the legs is not practicable.

CUTTING LIST:—

For Design (A).			
	Long.	Wide.	Thick.
	ft. ins.	ins.	ins.
A 4 Legs	2 7	$1\frac{1}{2}$	$1\frac{1}{2}$
B 2 Rails	2 3	2	$\frac{1}{2}$
C 4 Ditto	1 5	2	$\frac{1}{2}$
D 2 Decks	2 2 $\frac{1}{2}$	$16\frac{1}{2}$	$\frac{1}{2}$
For Design (B).			
E 4 Legs	2 10	$1\frac{1}{2}$	$1\frac{1}{2}$
F 3 Rails	2 5 $\frac{1}{2}$	$1\frac{1}{2}$	$\frac{1}{2}$
G 6 Ditto	1 3 $\frac{1}{2}$	$1\frac{1}{2}$	$\frac{1}{2}$
H 3 Decks	2 5 $\frac{1}{2}$	$15\frac{1}{2}$	$\frac{1}{2}$

All sizes are net, excepting (A) on which $\frac{1}{2}$ in. is allowed at each end for lathe purposes. (175)

BEDROOM FURNITURE DESIGNS.—*New and Revised edition.* This is an entirely new volume of designs, complementary to "Modern Bedroom Suite Designs" published a few months ago. The new issue includes one complete modern suite in oak (bedstead, wardrobe, dressing chest and tallboy); otherwise the volume is devoted to attractive and useful single pieces which, from time to time, the average home furniture maker

is anxious to make. These comprise Queen Anne and other bedsteads, fitted and other wardrobes, dressing chest with wing mirrors, various types of chests of drawers, bachelor's cabinets and chests, child's cot with drop side, adjustable lounge chair bed, bedside reading table, tallboy wardrobe, etc. Crown 4to., 48 pages, price 2/6 net. Evans Bros. Ltd., Montague House, Russell Square, London, W.C.1.

NEW PLANES.—The question is often asked: Should new beechwood planes be soaked in raw linseed oil? Well, we know of one maker who encloses a red danger label with each new plane, stating that he will take no responsibility if the plane is soaked in linseed oil. In our apprenticeship days they were not contented with pouring the oil into the escapement; they used to suspend the whole of the plane in a tub of linseed oil, weighing it when put in and again weighing it when taken out of the oil, charging for the oil absorbed by the difference in the weight.

Consider it thus. Moisture or liquids of any kind have a tendency to swell the wood, and linseed oil poured into the escapement will have easy access to the end grain which is there exposed. This portion will absorb more oil than the toe and heel of the plane, and this has a tendency to swell the wood, causing the plane to go in winding either on the sole or on its sides, possibly in both places. On taking the plane out of the oil and exposing it to the air, the linseed oil oxidises or hardens and closes the pores of the wood. In nearly all cases where planes are treated by soaking the escapement, or soaking the entire plane in oil, it is afterwards necessary to true up the sole and sides, and in some cases re-bed the plane iron to its frog. After over thirty years' experience, the writer prefers to make a pad of woollen rag and to oil the plane twice a day for fourteen days or so. The oil is thus distributed more evenly and there is not the same risk of distortion or splitting.

"HOW TO QUALIFY AS A HANDCRAFT INSTRUCTOR." Send threepence for this useful little pamphlet. Evans Bros. Ltd., Montague House, Russell Square, London, W.C.1.

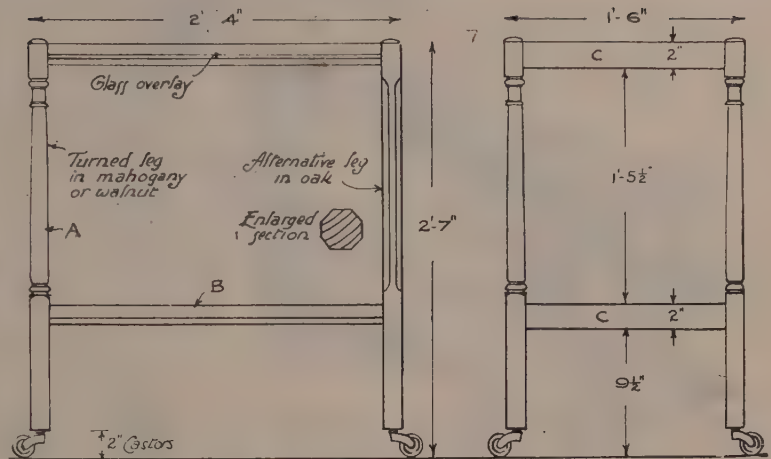


FIG. 3.—FRONT AND END ELEVATIONS OF DESIGN A (FIG. 1).

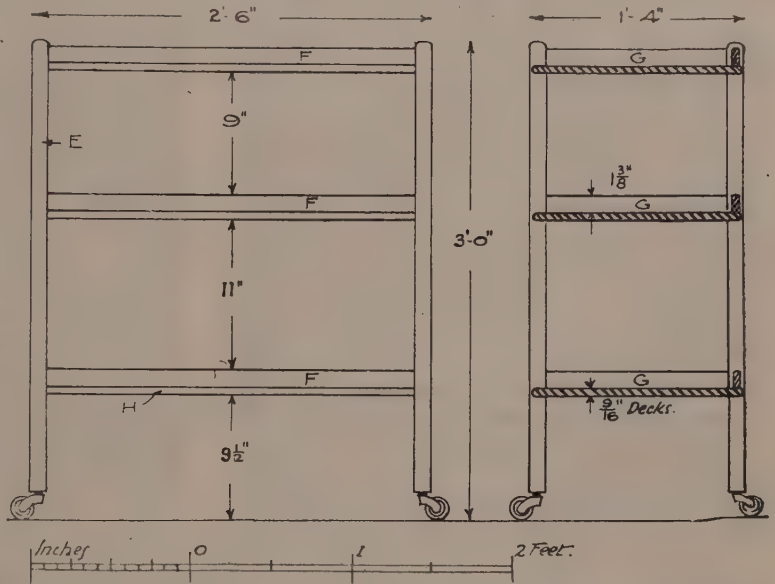


FIG. 4.—FRONT AND END ELEVATIONS OF DESIGN B (FIG. 2).

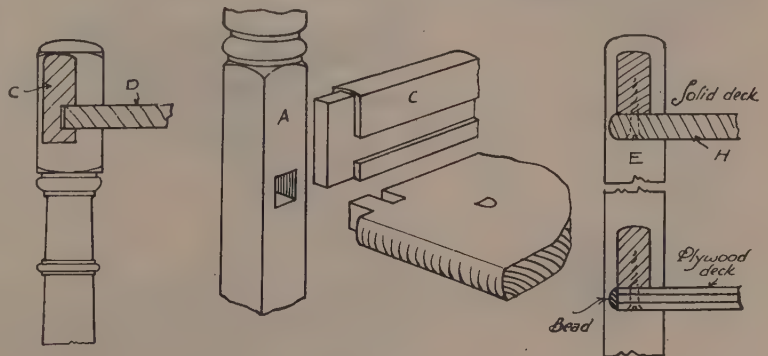


FIG. 5.—SECTION. FIG. 6.—DETAIL OF CONSTRUCTION. FIG. 7.—SECTIONS.

HOME CARPENTRY

3.—ON THE MAKING OF A TOOL STOOL—HINTS ON PLANE WORK

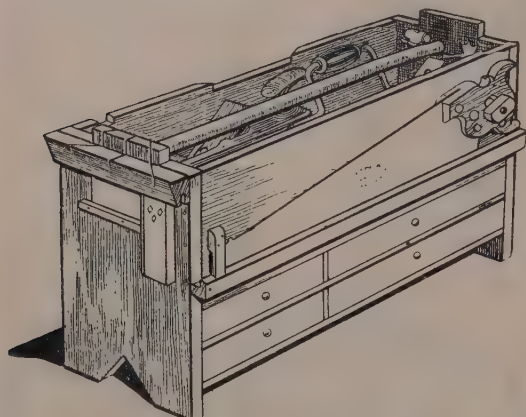


FIG. 1.—THE HOME WORKER'S TOOL STOOL. SIZE 23 IN. BY 15 IN. (SEE ALSO THE JANUARY AND FEBRUARY NUMBERS).

IMEDIATELY the whole of the wood has been planed and reduced to the necessary sizes the two ends of the stool may be bored to receive the broomstick handle or rod. When using the centre bit for this purpose it is good practice to bore the hole from one side of the wood until the point of the bit slightly protrudes on the opposite face; then withdraw the boring bit, reverse the wood and, placing the centre prong of the bit in the small index hole, proceed to bore the wood away until the core comes out in the form of a disc. Boring from each side prevents a rough and splintered edge, but care must be taken to hold the brace so that the axis is truly horizontal whilst the wood is held in the vice. The rod should be provided with a saw kerf at each end so that, after it is glued and driven in position, the ends may be securely wedged.

When nailing the box together use thin wrought iron nails, because owing to their rough surfaces they will be held by the wood fibres more securely. Do not forget to bore small holes for

your nails with either a bradawl or, better still, by using a breast drill and twist bit such as it used for boring vulcanite wireless panels. It is advantageous to drive in some of the nails in a sloping or oblique direction, because this will give a dovetailed hold on the nails. To strengthen the corners of the tool stool procure four stamped metal right-angle corner clips off an ordinary margarine box. These clips have projecting points similar to a boot protector plate and will materially strengthen up the skeleton of the stool. The clips can be withdrawn from an old box with the aid of a screwdriver, after which they may be straightened up to shape and used again. The beginner should, if he has carefully followed the procedure for sawing and planing, find little difficulty with the making of the drawers. The rebates at the end and the bottom of the drawer fronts are simply sawn away with the tenon saw. A temporary strip of wood may be nailed or screwed on to the drawer front so that it will act as a guide to the saw blade (see Fig. 2). The sides and bottoms are glued and sprigged in. The fitting of the American cloth or real leather strip inside the box so as to hold the smaller tools will present no difficulty, as these strips are secured where required with round-headed chair nails. The bullet catches, about $\frac{3}{8}$ in. diameter, may be purchased along with the small drawer knobs. The stool when completed should be well glass-papered with fine No. 2 grade glasspaper. After dusting, proceed to give a coat of size. Place 2½ ozs. of Cannon's concentrated size into a pint of warm water and stir until it is dissolved, then spread it on the work with a flat 1½ in bristle brush. The job should now be allowed to stand in a warm room for twenty-four hours, after which any roughness or raised grain may be rubbed down with No. 1 or spent No. 1½ grade glasspaper. Again dust the work and apply a coat of painter's knotting. When this coat is dry,

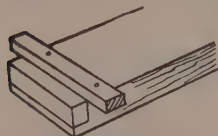


FIG. 2.—STRIP NAILED TO DRAWER FRONT.

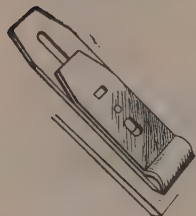


FIG. 3.—CAP IRON.

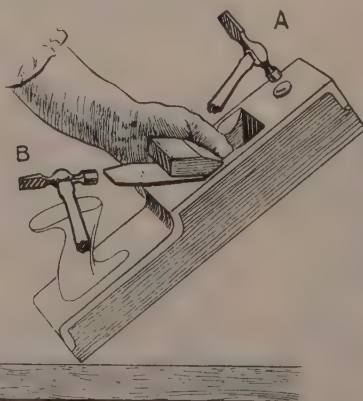


FIG. 4.—(A) RELEASING BLADE AND WEDGE. (B) ADJUSTING THE CUTTING BLADE.

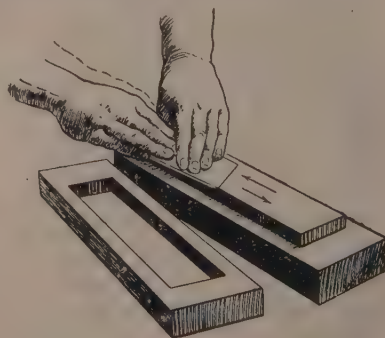


FIG. 5.—HOLDING PLANE IRON WHEN SHARPENING.

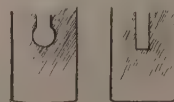


FIG. 6. (A). FIG. 6 (B).

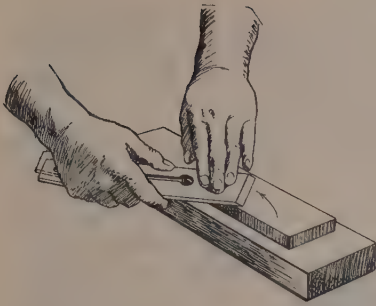


FIG. 7.—BLADE TURNED OVER WHEN SHARPENING.

ease away any dust specks that may have stuck to the surfaces with No. 1 glasspaper and then apply a coat of inside oil varnish.

Re-Conditioning of Planes and Chisels.

The wedge and the cutting blade of the wooden jack plane may be loosened by giving the plane two or three smart taps on the button or toe (see Fig. 4A). This vibration will release the blade and wedge, which should be held by the left hand and thumb to prevent them falling on to the floor or on to the foot of the workman. The cap or back-iron, which by the way is fitted to the front of the cutting blade, should then be unscrewed, and, provided the blade has not been dented by accidentally coming into contact with a nail, it is ready for sharpening. Place a few spots of lubricating oil on the surface of the oilstone and, holding the plane iron as at Fig. 5, proceed to rub it to and fro on the oilstone, exerting a fair amount of pressure with the fingers of the left hand. Great care must be taken neither to dip nor to lift the right forearm (see dotted line), because if this be done the rubbing action will be applied equally to both the cutting and the back edge of the grinding bevel, and this will result in a dubbed bevel instead of a properly sharpened edge. Fig. 3 illustrates such a rounded or dubbed bevel, which is of course useless for removing a shaving. The rubbing of the iron should be continued until the edge of the blade is just about to turn over or show a wire edge. The blade is then turned face side downwards on to the stone as at Fig. 7, and the wire edge removed by holding the blade perfectly flat on the stone and drawing the blade backwards whilst imparting a slightly circular movement to it. Avoid any tendency to lift the back end of the blade (see dotted line), because if the face side of the blade be ever so slightly rubbed over it will prevent the cap-iron bedding correctly and the shavings will constantly be driven up between the two irons, which will make planing a misery.

The edge should now be examined by looking directly on top of it. If the worker can detect a white line or a shiny edge the blade has been imperfectly sharpened and the re-conditioning must be continued by going through the whole of the

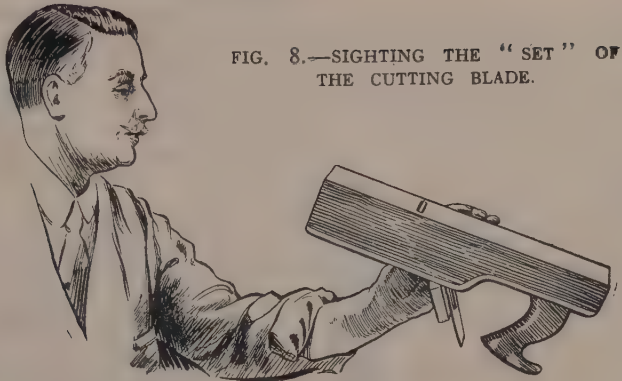


FIG. 8.—SIGHTING THE "SET" OF THE CUTTING BLADE.

processes again. Some workmen strop up the sharpened edge of the blade on a leather faced block of wood to increase its keenness, but this is quite unnecessary for general work and where a suitable grade of oilstone has been used. The stropping, however, can be recommended when sharpening carving tools. Chisels are sharpened in exactly the same manner as a plane iron.

WE NOW COME to the adjusting of the cap iron, which may be set back a full thirty-second of an inch from the edge of the cutting blade for an iron smoothing plane and a slightly greater distance for a wooden jack plane. The object of the cap iron is to prevent the blade taking off a shaving of too great a thickness and to prevent it tearing its way into the wood instead of removing shavings of uniform thickness. It also acts as a breaker or curling iron, and assists the shavings to free themselves from the escapement of the plane. If thick shavings have to be removed the cap iron must stand back from the edge of the cutting blade a greater distance than when fine shavings have to be removed.

Another important point is the camber or convexity of the cutting blade when viewed from the front (Fig. 6, A). For a jack plane the convexity should be quite $\frac{1}{16}$ th of an inch for the heavy duty that this plane has to perform, but for an iron or wooden smoothing plane which is to take off a finishing cut, not more than $\frac{1}{32}$ nd of an inch is necessary. See that this convexity is regular, as at Fig. 6, A, and on no account dubb off at the corners of the blade leaving the central portion at right angles to the edges (see Fig. 6B). Work finished off by such a blade as that depicted at Fig. 6B will show every plane mark after the job is polished or varnished. To set the blade in position hold the jack plane, the blade and the wedge with the left hand, thumb inside the escapement (Fig. 8) and, sighting along the sole of the plane, adjust the cutting blade to project about $\frac{1}{32}$ nd of an inch. Then tap up the wedge so as to hold all parts secure. Now try your plane on a piece of scrap wood, and if it has not sufficient hook or bite upon it tap up the cutting blade as at Fig. 4B. Should the plane bite into the wood too keenly tap the button or toe fairly lightly two or three times and then tap the wedge to secure all in position. (190)

CABINET SIDEBORD

AN interesting departure from the conventional sideboard is given in Fig. 1. Outstanding features are the concealment of the door frames, the hidden lower front rail, the use of three drawers at the top, and the receding top moulding. Actually, the doors have the usual frames, but, instead of the grooved-in panels, the fronts are faced with oak-veneered plywood. The use of this obviates any possible trouble through shrinkage. A small moulding surrounds the doors, and this serves the double purpose of providing a decorative finish and a protection for the edge of the veneer. A narrow slip shaped at both ends is fixed at the centre of each door and is continued upwards across the drawers where they serve as divisions. Erinoid knobs mounted on thin wood back plates are suggested. A deep chamfer decorates the front legs, and an original touch is given to the top by the setting in of the top rail.

CARCASE.—Prepare the legs first. Those at the corners run right through to immediately beneath

the top proper. The joints are shown in detail in Fig. 3. The ends are solid and are fixed with a tongue and groove joint. The top front rail is dovetailed, but this joint should not be cut until after the ends are glued up because of the auxiliary dovetail which fits in the ends. Of the two other front rails the upper one is tenoned in flush, whilst the other is set back by the thick-

ness of the doors which close in front of it. Both back rails and the stretchers are tenoned in as shown.

It is necessary to provide a rebate in the lower edge of the ends to hold the bottom. It also serves as a convenient seating for the lower front rail, the back part of which is screwed to it (see Fig. 3). Whilst the legs are cramped together for marking out, the short centre leg also should be marked. Both the joints and the chamfers can be squared across. Details of the centre leg joints

are given in Fig. 4. At the top a tenon is cut, and the lower rail is held in a notch. A pocket screw holds the joint firm.

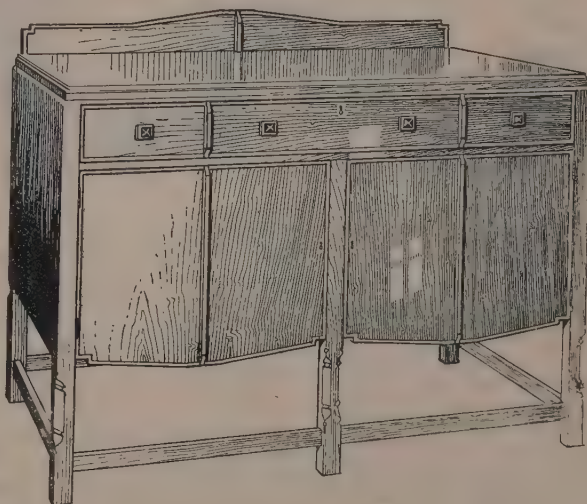


FIG. 1. CABINET SIDEBORD, 4 FT. LONG.

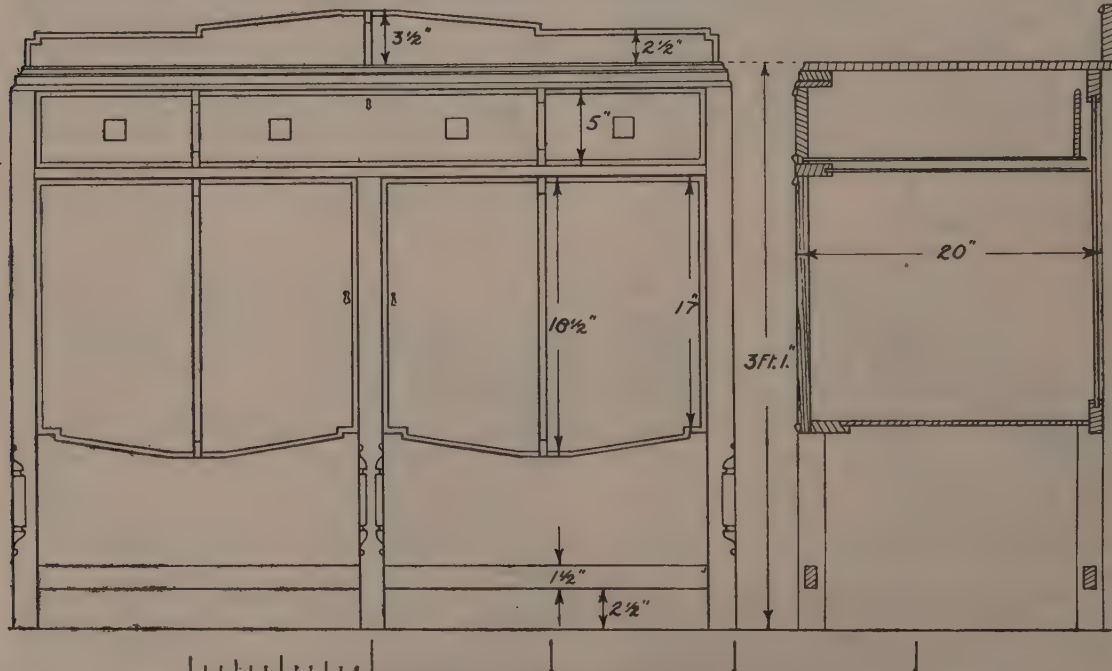


FIG. 2. FRONT ELEVATION, WITH SCALE.

FIG. 4. END SECTION.

In addition to the grooves for the ends it is necessary to provide narrow grooves for the back panels. In regard to the front rails, that at the bottom is rebated to hold the bottom, and the lower drawer rail has a groove for dustboards. When the ends have been glued together the top front rail can be jointed. Note that it is set back about $\frac{1}{4}$ in. to line up with the sort of rebate which is worked around the top edge of the ends. The lower corner of the rebate is rounded over as in Fig. 3 and so virtually becomes an additional member of the top moulding. To save the necessity of rebating the front rail a lining piece is glued beneath it, its front edge rounded to coincide with the round of the ends. This can be added after the job has been put together. The assembling will be simplified if the stretchers and two cupboard rails are fixed to the middle leg first. The top front rail is the last to be added. It will be realised, of course, that the two drawer divisions are thinner than usual as they form the

continuation of the upright door slips which are $\frac{1}{4}$ in.

Runners, guides, and dustboards are provided in the usual way. The bottom can be passed into position from underneath, the front being pushed forwards into its rebate and the back part screwed into the rebates in the ends.

DOORS.—Fig. 6 shows the construction of the doors. An ordinary framework with a centre upright is put together with mortise and tenon joints. The centre upright is required because the plywood is in two parts, the upright slip being fixed between them as shown in detail in Fig. 5. The plywood stands in $\frac{1}{4}$ in. all round and a moulding of the section given in Fig. 5 is glued round. It is butted against the upright slip.

The drawers are dovetailed together and a shallow rebate is worked around the edges to hold the moulding.

(Cutting List is given on page 80.)

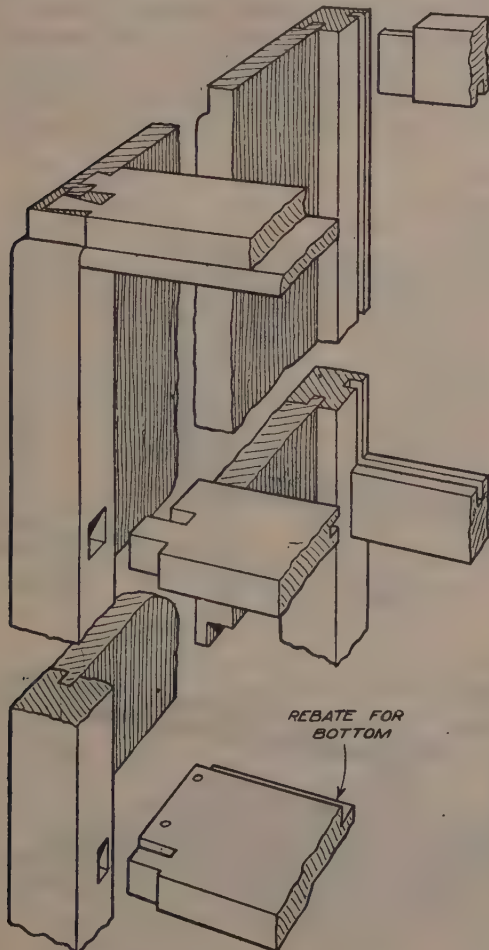


FIG. 3. SKETCH SHOWING
GENERAL CONSTRUCTION OF CARCASE.

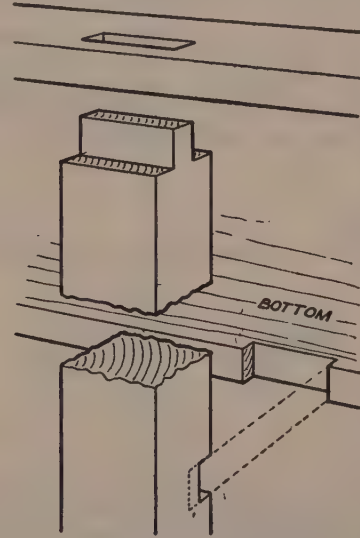


FIG. 4. CENTRE LEG JOINT.

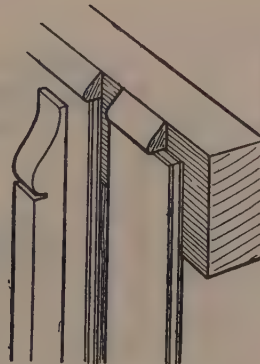


FIG. 5. DOOR DETAIL.

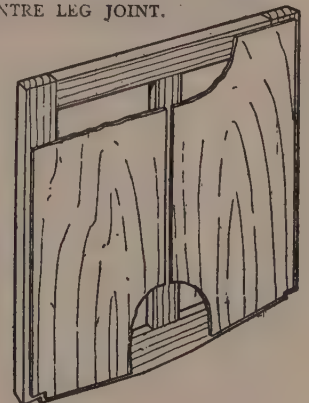


FIG. 6. HOW DOORS ARE MADE.

LIGHT CARPENTRY—A DOG KENNEL

TO keep a dog in good condition cleanliness is most essential, but it is next to impossible with some kennels. That sketched at Fig. 1 is made with a loose fitting bottom, so that the body of the kennel may be lifted from it, making every part accessible for cleaning and disinfecting. The bottom is also raised from the ground on four small blocks, which allows a clear passage for air, and prevents damp, while in addition a bench on which the dog may lie in comfort is made to slide under the bottom.

Kennels are usually made from 2 ft. 6 in. long by 1 ft. 6 in. wide by 2 ft. high, to 4 ft. 6 in. long by 3 ft. wide by 4 ft. high. The smallest size is suitable for a terrier, while the largest size will accommodate an Alsatian or similar large dog. The kennel shown in the drawings is an intermediate size, measuring 3 ft. 6 in. long by 2 ft. 6 in. wide by 3 ft. high. The framework should be of 1 in. or 1½ in. deal, the panelling of ¾ in. grooved and tongued boards, and the roof may be either covered with similar boards or with weather boards.

THE TWO END FRAMES (Fig. 2) should be made first. The uprights are 2 ft. 6 in. long by 4 in. wide; the top rails, 1 ft. 4 in. long by 2 in. wide, and the bottom rail 2 ft. long by 2 in. wide. The top rails are half-lapped and screwed together,



FIG. 1.—DOG KENNEL. SIZE 40 IN. BY 28 IN.

and both the top and bottom rails are half-lapped and screwed to the uprights. The end frames are joined by two top and two bottom cross rails (Fig. 3), 3 ft. 4 in. long by 2 in. wide. These rails are half-lapped into the end frames, and the edges of the top rails are planed to the roof level. The grooved and tongued boards are nailed to the framework with the joints running perpendicularly. The roof boards should overhang about 2 in. all round, and if grooved and tongued boards are used an outer covering of rubber or felt is desirable, while with weather boards a ridge roll

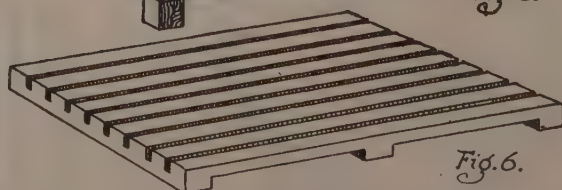
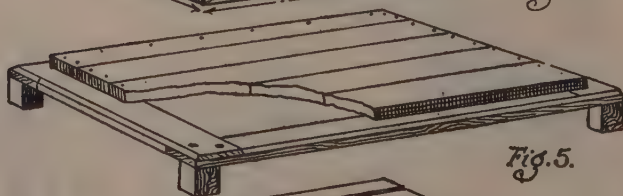
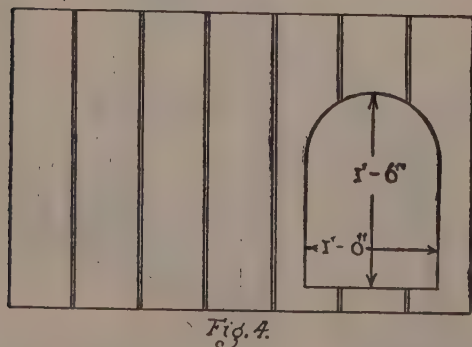
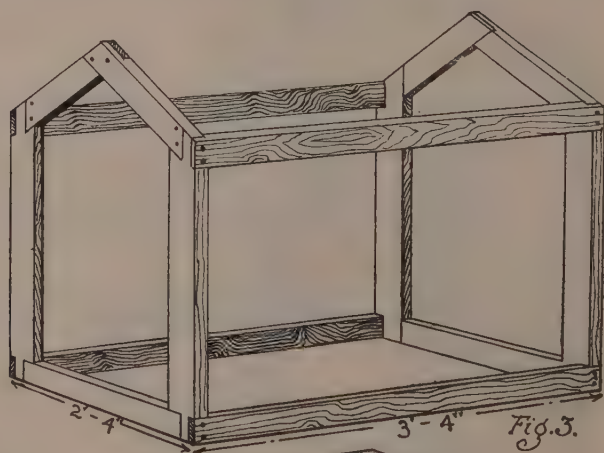
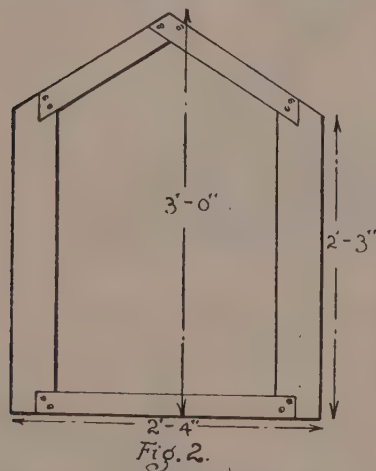


FIG. 2.—END FRAME. FIG. 3.—SKETCH. FIG. 4.—SIDE VIEW. FIG. 5.—FLOOR. FIG. 6.—BENCH.

should be provided. The entrance should be cut in one side as shown at Figs. 1 and 4.

THE BOTTOM OF THE KENNEL (Fig. 5) is made with a framework of 4 in. by 1 in. battens half-lapped together, the frame being large enough to overhang the body $\frac{1}{2}$ in. all round. The edges are chamfered $\frac{1}{2}$ in. and the frame is covered with $\frac{1}{2}$ in. boards, the edges of which are kept in a sufficient distance to allow the body of the kennel to fit down on the frame. The blocks which are

fitted at the corners are about 2 in. square, nailed or screwed through the frame.

THE BENCH (Fig. 6), is made with nine 3 in. by $\frac{1}{2}$ in. rails nailed to three 2 in. by $\frac{1}{2}$ in. cross battens.

When complete, the kennel should be disinfected or lime-washed inside, and painted or treated with a wood staining and preservative preparation outside. (188)

FOUR-FRAME FOLDING CLOTHES AIRER

THE folding clothes airer sketched at Fig. 1 is a great improvement over the ordinary kind, as it offers double the accommodation on its four frames, which fold flat when not in use. The frames are hinged together in pairs, and the two pairs are hinged to a back upright.

VERY LITTLE MATERIAL is required, but hardwood such as birch or beech gives the best results. Eight uprights, 3 ft. long by $\frac{7}{8}$ in. square, are required for the frames, the back upright being 3 ft. long by 4 in. wide by $\frac{7}{8}$ in. thick. Eight $\frac{3}{4}$ in. dowel rods, 2 ft. long, should be used for the cross rails of the frames.

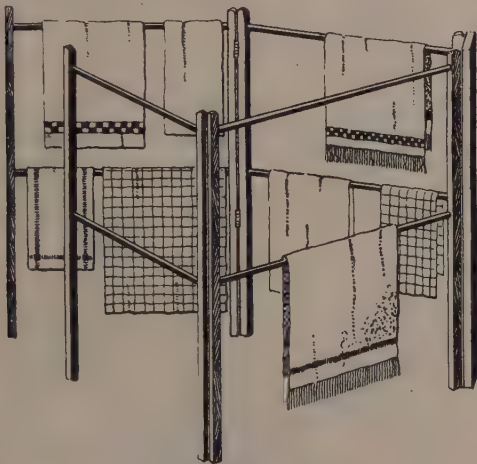
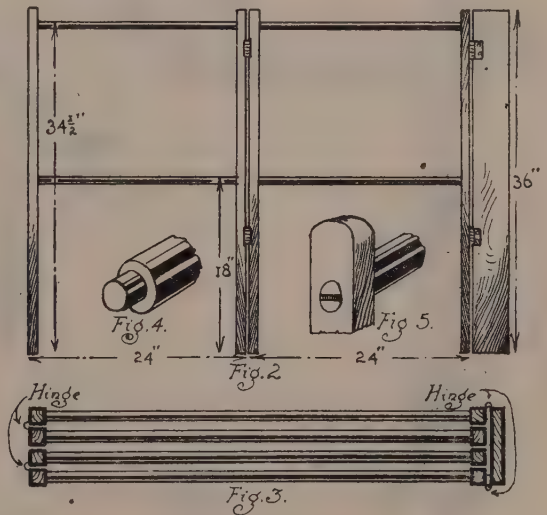


FIG. 1.—FOUR-FOLD CLOTHES AIRER.

TWO OF THE FRAMES hinged to the back upright are shown at Fig. 2, and a plan of the airer with its four frames hinged together and to the back upright is shown at Fig. 3. The ends of the rods should be shouldered down to $\frac{1}{2}$ in. diameter, as at Fig. 4, and they are bored into the uprights and glued and wedged (Fig. 5). Hinges, 1 $\frac{1}{2}$ in. wide, should be used to hinge the frames together and to the back upright. (186)



FIGS. 2 TO 5.—ELEVATIONS, PLAN, ETC.

"CABINET CONSTRUCTION."—To home woodworkers, especially to those engaged in the making of furniture, a knowledge of details is necessary. For many years "Details of Cabinet Construction" proved to be one of the most useful handbooks for this purpose. Last year the volume was completely revised and re-published with new illustrations and a series of twenty-four plates of details of period furniture. The handbook deals specifically with the separate and distinct detail parts which go to make up pieces of ordinary furniture, each detail being treated in a way that will guide the reader through its con-

struction in any style and in any size. The contents comprise joints in carcase work, cabinet and table tops, table and chair legs, cabinet doors (including barred doors and leaded lights), drawer making (including rails and runners), cornices, cappings and shapings, facing, etc., the rule joint, cabinet backs, veneering, inlaid bands and stringings, working mouldings by hand, setting-out boards, metal fittings, and (as already stated), examples of period furniture details and metalwork. (Price 3/6 net). Through all booksellers, or direct from Evans Bros. Ltd., Montague House, Russell Square, W.C.1.

BEDSIDE READING TABLE

A TABLE of this kind is invaluable in the home as it may be used for so many purposes. As shown at Fig. 1 it is useful for serving a meal in bed and, fitted with a book rest, it may also be used for reading. The height of the table can be adjusted so that it may be used with a bed, settee or chair, and the book rest is also adjustable.

THE TABLE is sketched at Fig. 2, from which it will be seen that the base is solid and is fitted with four castors. Two uprights are framed into the base, and another upright which carries the table top fits between them and is adjusted at the height required with a bolt and thumb screw. The table top is framed and panelled, and the book rest is made to fold flat when not required, giving a level top. Oak is the most suitable wood, and the work is quite straightforward.

THE BASE (Fig. 3) is 18 ins. long by 12 ins. wide at one end, tapering to 9 ins. at the other by $\frac{3}{4}$ in. thick, strengthened with two battens

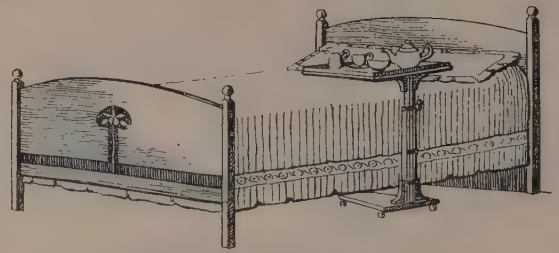
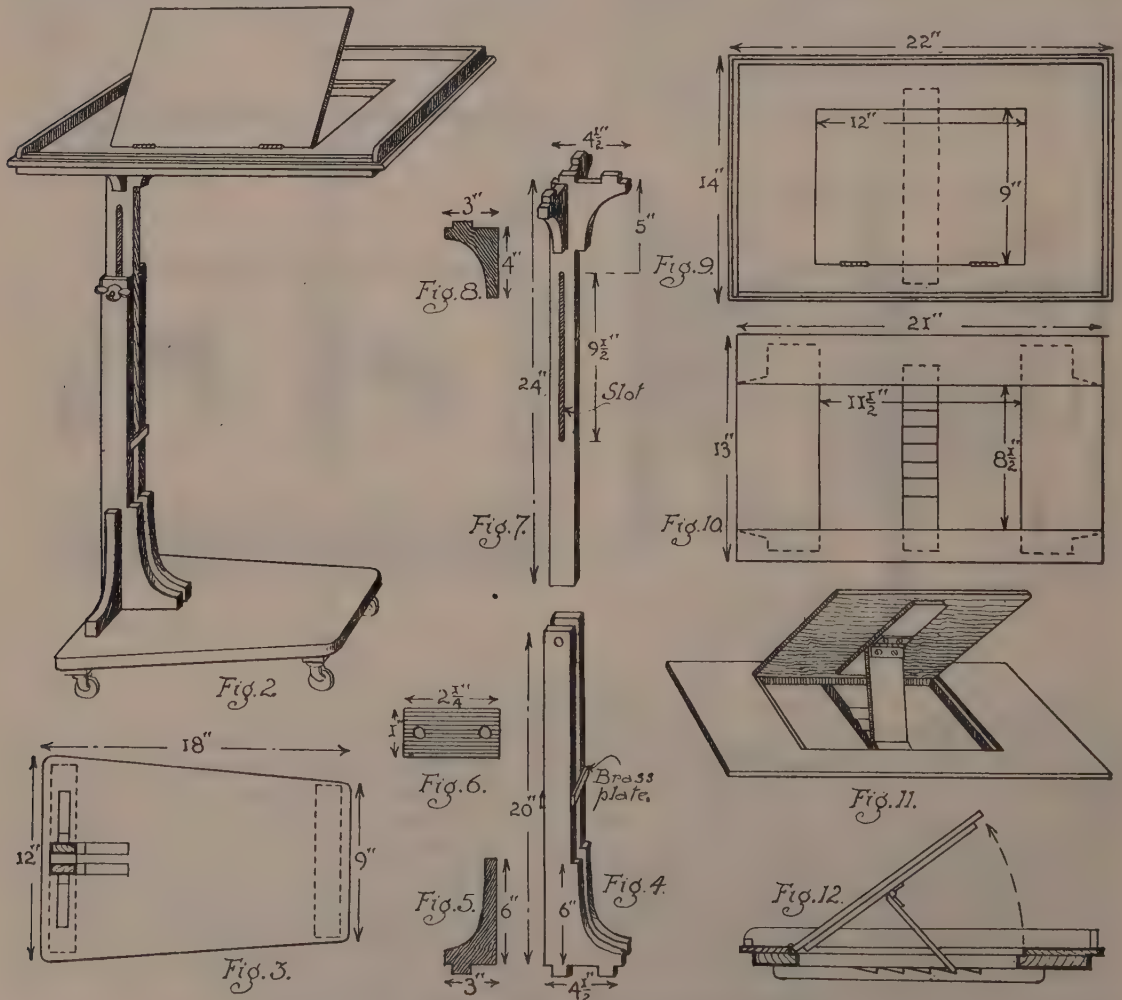


FIG. 1. READING TABLE FOR THE BEDSIDE.

1½ in. wide by ¾ in. thick. The two uprights (Fig. 4), which are framed into the base, are 20 ins. long by 4½ ins. wide at the bottom, shaped to 1½ ins. at the top by ¾ in. thick. Double tenons are cut at the bottom ends and corresponding mortises in the base, the uprights being spaced ½ in. apart.

The work is strengthened by fixing brackets



FIGS. 2 TO 12. SKETCH AND CONSTRUCTIONAL DETAILS.

(Fig. 5) on each side of the uprights, the brackets being screwed through the uprights before the latter are fixed, and tenoned into the base. Two small brass plates (Fig. 6) are screwed to the edges of the uprights, as at Figs. 2 and 4.

THE UPRIGHT (Fig. 7), which carries the table top, is 24 ins. long by 4½ ins. wide at the top, shaped to 1½ ins. at the bottom by ¾ in. thick, and brackets (Fig. 8) are fixed at each side. A ½ in. bolt and thumb screw are fitted at the top ends of the two bottom uprights, and a ¼ in. slot is cut in the top upright.

THE TABLE TOP (Figs. 9 and 10) is framed up with a top rail, 21 ins. long by 2½ ins. wide; bottom rail, 21 ins. long by 1½ ins. wide, and two stiles, 12 ins. long by 4½ ins. wide by ½ in. thick, mortised and tenoned or lapped together to the dimensions given at Fig. 10. The top panel is 22 ins. long by 14 ins. wide by ½ in. thick, and if the opening is carefully cut the part removed

may be used for the book rest. The top is glued to the frame, and the book rest is hinged to the top, as shown at Fig. 11. The rest is strengthened with a batten, 8 ins. long by 2 ins. wide by ½ in. thick, screwed at the back, and is adjusted by means of a strut 4 ins. long by 2 ins. wide by ½ in. thick, which engages a notched rail 10½ ins. long by 2 ins. wide by ½ in. thick, as shown at Figs. 11 and 12. The top upright should be glued and screwed to the frame before the top panel is fixed. Sides, ¾ in. high by ½ in. thick, should be fixed around the ends and back of the top, and a slip ½ in. square is fixed across the front.

Four rubber-tyred castors, similar to those used for dinner-wagons, or four of the ordinary metal type should be fitted to the base. Excellent castors are obtainable from the South London Wheel Works, (Dept. W), 61, New Kent Road, S.E. 1. (161)

BOOKSTAND AND PIPE RACK

THIS novel and useful little article, which is sketched at Fig. 1, will hold from ten to a dozen volumes in its two divisions for books, and half a dozen pipes in the rack. It is intended to stand on the writing or side table, and should be made from a choice cabinet wood.

THE PARTS REQUIRED are: two sides, 12 ins. long by 7½ ins. wide; bottom 6½ ins. long by 12 ins. wide; division, 6½ ins. long by 6 ins. wide, all by ¾ in. thick; two portions of the lower shelf of the pipe rack, 11 ins. long by 2 ins. wide; top shelf, 11 ins. long by 1½ ins. wide, all by ½ in. thick, and 5 ft. of ¾ in. half-round turned beading.

A PLAN OF THE STAND and rack is shown at Fig. 2. The sides (Fig. 3) and the bottom (Fig. 4) are mortised and tenoned together, and the division (Fig. 5) is dovetail-grooved into the sides, as shown at Figs. 2 and 6.

THE BOTTOM PORTION of the lower shelf of the pipe rack (Fig. 7) is quite plain, while the top portion (Fig. 8) is pierced with six openings for the bowls of the pipes. The two portions are

glued together, the back edges being kept level, and the shelf is screwed through the side. The top shelf (Fig. 9) is pierced with six ¾ in. openings for the stems of the pipes, and is fixed in a similar manner to the lower shelf.

The half-round turned beading is glued and pinned to the edges of the sides. (162)

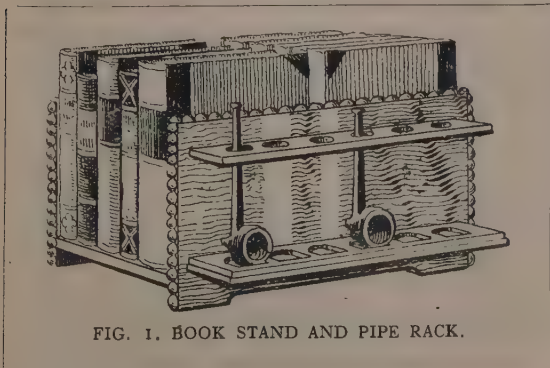
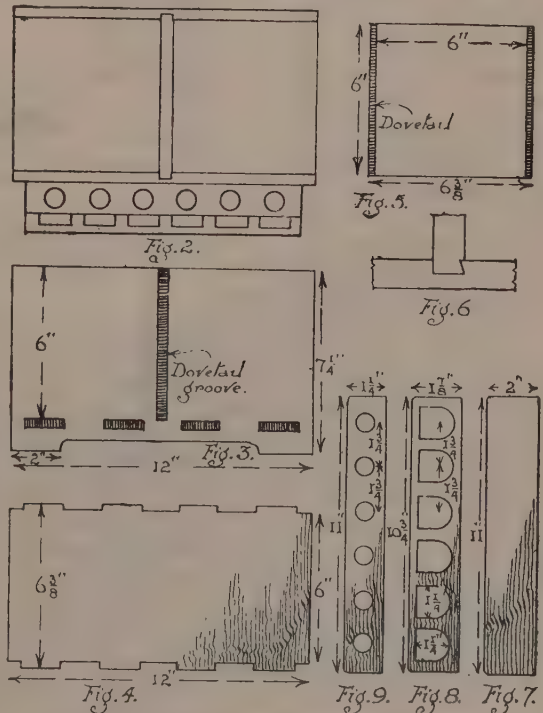


FIG. 1. BOOK STAND AND PIPE RACK.



FIGS. 2 TO 9. CONSTRUCTIONAL DETAILS.

LADY'S WORK TABLE

THIS Work Table is provided with two wells. One receives work in hand, whilst the adjoining shallow one is fitted with a loose tray divided up for cottons, needles, silks, etc. The front of this portion shows as a dummy drawer, whilst below are two drawers which again might be fitted with trays. The whole thing is very suitable for making up in oak, mahogany, or walnut.

THE FOUR LEGS (A) should be of selected material as long and straight in the grain as possible and well seasoned. They will finish $1\frac{1}{4}$ in. by $1\frac{1}{4}$ in. square over the upper 11 ins. of length, below which they are tapered to about $\frac{3}{4}$ in. by $\frac{3}{4}$ in. square at ground. Instead of being tapered the legs might be kept square for their full length and be finished with a $\frac{1}{4}$ in. ovolo on the outer angle with neat result. The legs will require mortising for ends and rails as these occur.

THE UPPER RAIL (B) will be cut with a pair of tenons, one of which will enter leg and the other have a shallow bearing in it in addition to being notched into carcase side. The rail will also be stubbed into inner division, or it may be housed in and screwed through from the well side. Above this rail (and bedding upon it) a narrow front (C) will be tenoned into position to leg and also be cut to its full thickness into face edge of inner division. The joints at each end should be pegged as a stiffening hold.

THE BEARER RAIL (D) will be tenoned to leg and to inner division when fitting, the inner edge being also grooved to receive a tongue on runners and dustboard of plywood.

THE CARCASE BOTTOM (E) may be solid, and will then be tenoned to legs in addition to being screwed up to under edge of carcase sides and to inner division and to the carcase back. If preferred, however, this bottom may be made up of a frame of 2 in. by $\frac{3}{4}$ in. rails, tongued together and with a centre rail immediately under centre division (F) as shown. A dustboard of plywood may be fitted under bottom drawer, the rails being grooved to receive it, after which the back rail will be tongued into position. If framed up the bottom of the deep well may be formed by a piece of $\frac{3}{4}$ in. thickness or 5 mm. plywood dropped in to rest upon the framing and at the same time

form a stop for the door if the panelled front is hinged to open.

THE CENTRE DIVISION (F) will be made up of an upright 2 in. wide, tenoned to bottom (E) right through and further held above by a rail (G) dovetailed into position each end. This rail will come immediately under the inner edge of the capping frame and flush with it.

The continuation piece to complete the inner division will be cut with the grain to run horizontally and be tongued in position to F, in addition to being further held by screwing through centre stile of carcase back.

THE ENDS (H) will be cut with the grain running horizontally, any necessary jointing up being tongued with cross-cut hardwood tongues. About three tenons will suffice at each end for fitting, the joint being pegged as a stiffening hold. The part will require grooving for runners, and if $\frac{3}{4}$ in. thickness is used the bottom edge may be rebated to receive the carcase bottom for screwing. If a $\frac{3}{4}$ in. thickness is used for sides the bottom might be screwed direct to the lower edge of sides, the end grain of the bottom itself being bevelled away as a finish.

FOR THE RUNNERS (I) two pieces will be tongued to enter rail (D), the parts being also grooved to receive dustboards of plywood, which will be pushed

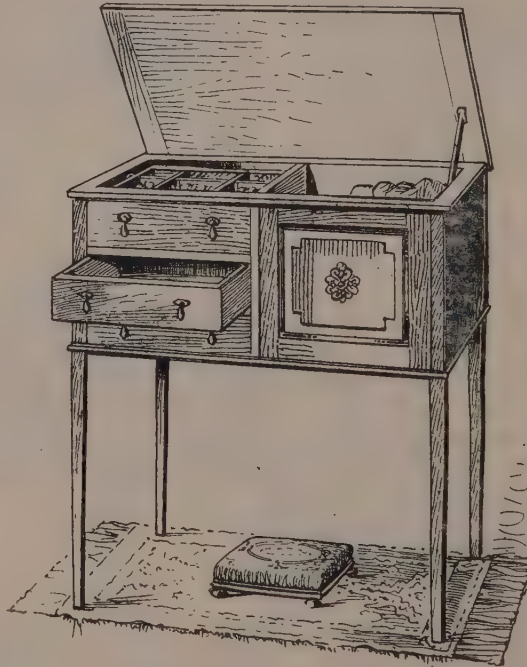


FIG. 1.—LADY'S WORK TABLE. WIDTH, 2 FEET.
HEIGHT, 2 FT. 4 INS.

home from the back.

The upper tray well has its bottom (J) formed by a piece cut to fit and dropped into position so that it gets a bearing on rail (B). A slip of bead may be glued and nailed to sides and inner division to carry it at the proper level, or the piece (J) can be shallow-grooved into position and tapped home.

THE TRAY (K) to be fitted in this well might finish about 8 in. back to front so that, when resting on the supporting fillets, it is possible to slide it a few inches backwards and forwards to enable the hand to pass to contents under the tray and thus on occasion avoid moving the tray itself for this purpose. The tray may be divided up with slips of $\frac{1}{4}$ in. thickness or plywood to be V-grooved to each other and to sides as required. The best plan in arranging for these divisions is to set out the various sizes of reels and silk card-

ings as these may best allow, but a good general arrangement is that indicated in Fig. 5.

BACK.—In making the carcass back (L) it is possible to use 5 mm. or 7 mm. plywood, but a stronger piece of work with a much improved appearance will be assured if a framed two-panelled back is made up for the purpose, stiles and rails being mortised and tenoned together, with inner centred stile stubbed into position top and bottom and panels of 5 mm. plywood grooved in. The back pair of legs had best be rebated to receive this back, which can be screwed into position with round headed brass screws.

The framed rim or capping (M) which forms a good finishing feature will be made up of stiles and rails mitred and tongued together with the

outer or face edges rounded. The width of $1\frac{1}{2}$ in. allowed will include a $\frac{1}{4}$ in. projection all round, to finish with the inner edge of framing flush with the inner sides of legs.

THE TOP (N) will be made up by clamping at each end with 2 in. clamps grooved and tongued on. Ordinary brass butt hinges will serve for attachment in position, or a length of piano hinge may be used.

Whilst plain wood is indicated in Fig. 1 to meet general requirements, it should be said that an enhanced appearance if desired may be obtained by inlaying the face edges of front with $\frac{1}{4}$ in. or $\frac{3}{8}$ in cross-cut banding. On oak a suitable banding would be of walnut or brown mahogany, the lengths being rebated flush into position as indicated in section, Fig. 3. Or, again, the drawer

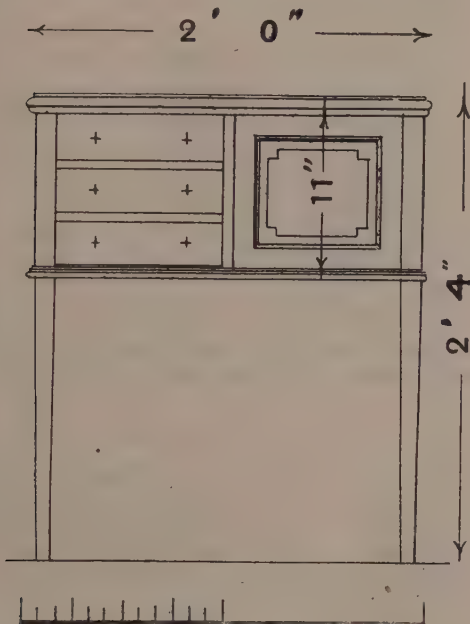


FIG. 2.—FRONT ELEVATION, WITH SCALE.

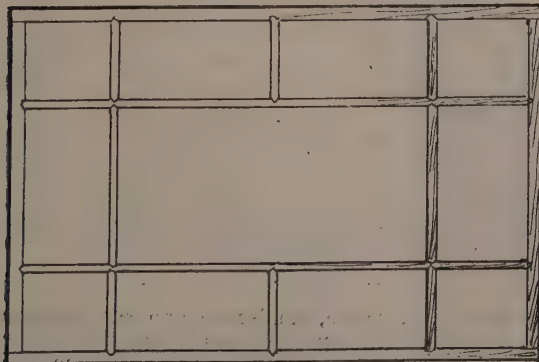


FIG. 5.—SUGGESTED PLAN OF TRAY

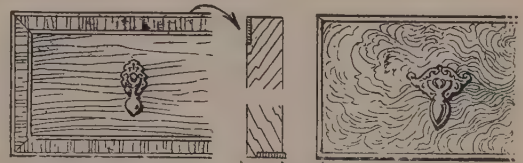


FIG. 3.—SUGGESTED VENEERED FRONT.

FIG. 4.—ALTERNATIVE VENEERED SCHEME.

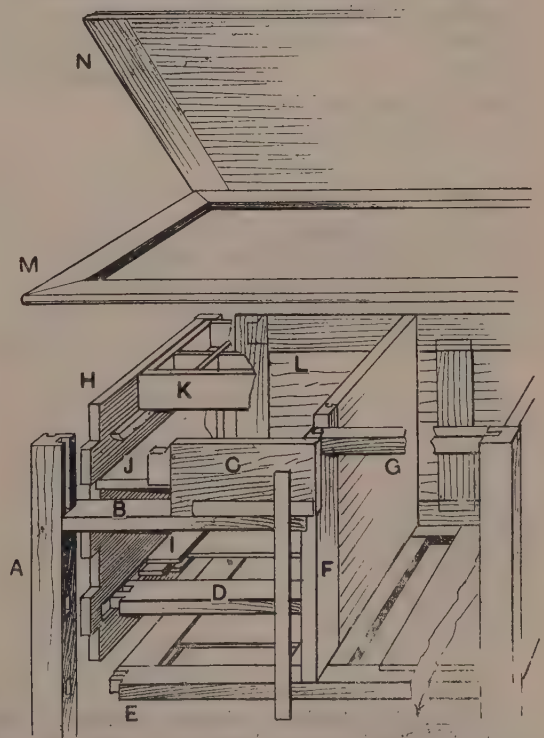


FIG. 6.—GENERAL METHOD OF CONSTRUCTION.

edges may have a surround of flat rebated in to form a cocked bead effect as seen, Fig. 4. The drawer face of curl mahogany on mahogany or burr walnut for a walnut treatment will be of knife cut veneer to finish close up to the beads all round.

THE WELL FRONT (or door) will be framed up of stiles and rails $1\frac{1}{2}$ in. wide to be mortised and tenoned together and be rebated for a panel of 5 mm. plywood which, in Figs. 1 and 2, is shown as mounted with a broken corner panel of veneer to be glued and needle pointed on. If desired an all plain front may be fitted to be surrounded by a cocked bead in the manner indicated in Fig. 4, an arrangement which would provide a good opportunity of utilising any figured wood at hand.

In Fig. 1 the panel is indicated as relieved by a fret device in centre, for which a stock pattern may be purchased.

As a last word in passing, the suggestion might be made by way of completing the whole thing that a small footstool be made to stand under the table. The base of such a stool can be formed by a frame of $1\frac{1}{2}$ in. by $\frac{3}{4}$ in pieces to finish to size of about 6 ins. by 7 ins. A plywood bottom can be panel-pinned over this frame and, in upholstering, the stuffing may be contained in a calico bag if evenly distributed, and the edges of the bag be turned under neatly and tacked down with upholster's tacks. Over this a final covering of velour, tapestry, moquette, rexine or leather can be nailed and finished with a border of small round headed brass nails. Four ball feet about 1 in. high are ultimately added to complete the whole thing.

CUTTING LIST:—		Long. ft. ins.	Wide. ins.	Thick. ins.
A	Four legs	2 4	$1\frac{1}{2}$	$1\frac{1}{2}$
B	One rail	1 0	2	$\frac{3}{4}$
C	One front	1 0	3	$\frac{3}{4}$
D	One runner	1 0	2	$\frac{3}{4}$
E	One bottom (to fit)	2 0	12	$\frac{3}{4}$
F	One centre upright	0 11	2	$\frac{3}{4}$
Continuation				
	piece	0 10 $\frac{1}{2}$	11	$\frac{3}{4}$
G	One rail	1 0	$\frac{1}{2}$	$\frac{3}{4}$
H	Two ends	1 0	11	$\frac{3}{4}$ or $\frac{1}{2}$
I	Two runners	0 10 $\frac{1}{2}$	$1\frac{1}{2}$	$\frac{3}{4}$ or $\frac{1}{2}$
J	One tray bottom	1 0	10 $\frac{1}{2}$	$\frac{3}{4}$ or $\frac{1}{2}$
K	Two tray pieces...	1 0	$1\frac{1}{2}$	$\frac{1}{2}$
	Two pieces	0 8	$1\frac{1}{2}$	$\frac{1}{2}$
	Two fillets	1 0	$\frac{3}{4}$	$\frac{3}{4}$
	One bottom	1 0	8	$\frac{1}{2}$ or $\frac{3}{4}$
L	Three back stiles	1 0	3	$\frac{3}{4}$ or $\frac{3}{4}$
	Two rails	2 0	3	$\frac{3}{4}$ or $\frac{3}{4}$
Panels of plywood (to fit).				
	Two drawer fronts	0 10 $\frac{1}{2}$	3	$\frac{3}{4}$
	Sides and backs, $\frac{3}{4}$ in.; bottoms, $\frac{1}{2}$ in.			
	Two well stiles...	1 0	$1\frac{1}{2}$	$\frac{3}{4}$
	Two rails	1 0	$1\frac{1}{2}$	$\frac{3}{4}$
	Panel or plywood (to fit), 4 ft. mould ($\frac{1}{2}$ in.) if required.			
M	Two cappings	2 3	$1\frac{1}{2}$	$\frac{3}{4}$
	Two pieces	1 3	$1\frac{1}{2}$	$\frac{3}{4}$
N	Two top clamps...	1 0 net	2	$\frac{3}{4}$ or $\frac{1}{2}$
	One top piece	1 10	12	$\frac{3}{4}$ or $\frac{1}{2}$
	Bottom mould	5 0	$\frac{3}{4}$ section	

Lengths are full to allow for paring, mitreing and fitting. Widths generally and all thicknesses are net. (173)

Cabinet Sideboard

(Continued from page 73).

THE CUTTING LIST is as follows:—

	Long. ft. ins.	Wide. ins.	Thick. ins.
4 Legs	3 1	$1\frac{1}{2}$ (sq. finished).	
1 Leg	2 7	$1\frac{1}{2}$ (sq. finished).	
2 Ends	2 0 $\frac{1}{2}$	18	$\frac{3}{4}$
1 Rail	4 0	$2\frac{1}{2}$	$\frac{3}{4}$
2 Rails	4 0	$2\frac{1}{2}$	$\frac{3}{4}$
2 Rails	2 0	$1\frac{1}{2}$	1
2 Rails	4 0	$2\frac{1}{2}$	1
1 Rail	4 0	$1\frac{1}{2}$	1
2 Rails	1 8	$1\frac{1}{2}$	1
2 Divisions	0 7	$2\frac{1}{2}$	$\frac{3}{4}$
1 Lining	3 9	$2\frac{1}{2}$	$\frac{3}{4}$
1 Top	4 0	20 $\frac{1}{2}$	$\frac{3}{4}$
1 Edging	4 0	$3\frac{1}{2}$	$\frac{3}{4}$
1 Upright (back)	1 10	$2\frac{1}{2}$	1

	Long. ft. ins.	Wide. ins.	Thick. ins.
2 Panels	1 9	22 $\frac{1}{2}$	$\frac{1}{2}$
1 Bottom	4 0	16 $\frac{1}{2}$	$\frac{1}{2}$
3 Runners	1 6	3 $\frac{1}{2}$	$\frac{3}{4}$
Drawers:			
1 Front	1 10 $\frac{1}{2}$	5 $\frac{1}{2}$	1
2 Fronts	0 10 $\frac{1}{2}$	5 $\frac{1}{2}$	1
1 Back	1 10 $\frac{1}{2}$	5	$\frac{3}{4}$
2 Backs	0 10 $\frac{1}{2}$	5	$\frac{3}{4}$
6 Sides	1 7	5 $\frac{1}{2}$	$\frac{3}{4}$
1 Bottom	1 10	19	plywood
2 Bottoms	0 10	19	plywood
Doors:			
4 Stiles	1 5 $\frac{1}{2}$	2 $\frac{1}{2}$	$\frac{7}{8}$
2 Stiles	1 4 $\frac{1}{2}$	2 $\frac{1}{2}$	$\frac{7}{8}$
2 Rails	1 9	2 $\frac{1}{2}$	$\frac{7}{8}$
2 Rails	1 9	3 $\frac{1}{2}$	$\frac{7}{8}$
4 Panels	1 6 $\frac{1}{2}$	10 $\frac{1}{2}$	plywood

Mouldings and small parts not included. (139)

SCENIC MODELLING is the title of one of the latest 1/6 handbooks published by Messrs. Cassell. The handbook, fully illustrated, is written by Mr. Edward W. Hobbs, and deals with the whole

subject of house, landscape and seascape modelling for window or other display. Obtainable through all booksellers, or direct from Messrs. Cassell and Co., Ltd., La Belle Sauvage, E.C.4.

HINTS ON BUYING PLYWOOD

IT would be difficult to find a material more useful for household purposes than that latest and most adaptable commodity of the wood world—plywood. The popularity of plywood has grown enormously during recent years, and it is now used in the construction of cabinets, wardrobes, drawer bottoms, partitions, wall lining, tables, chair seats, linen cupboard and other things too numerous to mention. Yet, surprising as it may seem, the general public seems to be ignorant as to what plywood really is, and the forms and sizes in which it can be obtained.

These notes are not written for the expert, but to the uninitiated it may be explained that plywood is made of thin layers or veneers of wood glued together with the grain of adjacent veneers at right angles. It is then put into a press, and later goes through elaborate machinery in the process of drying, smoothing and trimming to sizes. This produces a board combining qualities of great strength, lightness and pliability, and it can be had of a size impossible to obtain in solid wood.

It is curious how even some regular amateur woodworkers waste time when ordering plywood. Some think that the number of plies indicates the thickness, and that if they order, say, two sheets of "5-ply," the merchant will know what to send. That is not so. The number of plies has no bearing whatever on the thickness. Plywood is made in thickness from one-eighth of an inch to one inch and over in any number of plies. In the trade the thickness is quoted in millimetres. For the guidance of those who have forgotten their metric tables the approximate equivalent of millimetres in fractions of an inch are given at the end of this article.

At the present time there are five types of plywood readily obtainable:—

Three-ply.—Panels made from three veneers, with adjacent veneers at right angles, manufactured in thicknesses mostly from $\frac{1}{8}$ in. to $\frac{1}{2}$ in., and in some woods up to $\frac{3}{4}$ in.

Multi-ply.—Panels with adjacent veneers also at right angles to one another, made in any number of plies or veneers, and in thicknesses from $\frac{1}{8}$ in. to 1 in. and over.

Laminboard.—Panels with a core of multi-ply veneers, as a rule not exceeding $\frac{1}{2}$ in., made into a solid block and re-cut edgewise with outside plies of thick veneers. These boards are supplied in thicknesses from $\frac{1}{8}$ in. up to 2 ins. and over.

Battenboard.—Panels constructed similarly to laminboard, but with the core made from sawn lumber. Thicknesses as supplied in laminboard.

Veneered plywood.—Panels of the first four types veneered on one or both sides with some decorative wood such as mahogany, oak, walnut, etc. Those faced or veneered on one side only are (naturally) cheaper than those faced both sides. Remember this when buying, as amateurs often through ignorance buy panels faced both sides with some expensive hardwood for purposes where one side will be either covered or not showing.

A three-ply board made with the centre ply a little stouter than the two outer plies will be more rigid than one made of three equal plies. An equal-ply panel, however, is more suitable for bending purposes.

Plywood is now produced in the following woods, which may be considered standard productions:—

Birch.—The most commonly used plywood. Suitable for all ordinary purposes, and remarkably cheap. It has a plain looking surface, and can be obtained in many qualities.

Alder.—Lighter in weight, less firm than birch and not so pliable. Not suitable for decorative work, but quite good for painting and covered work. It is one of the cheapest plywoods.

Gaboon.—A mahogany of very pale colour. Being a larger growing timber than either birch or alder, panels of very large dimensions can be obtained. Rather expensive.

Oregon Pine.—Usually without a blemish, with a beautiful broad grain. Yellowish in colour, these panels are excellent for decorative work and are very attractive when properly stained. About the same price as first quality birch.

Ash.—Very strong, and in appearance like plain oak, for which it is an excellent substitute. Is largely used for panelling.

Oak.—Can be obtained figured and plain. Excellent for cabinet work, but one of the most expensive plywoods.

Plywood can also be obtained in the better kinds of mahogany, walnut and many other woods, but these are not as yet considered standard productions.

The stated quality of plywood indicates the "cleanness" (or absence of knots) of the panels, and has nothing to do with the strength. Always, when possible, inspect plywood before purchasing. The "1st" quality of one merchant may only equal the "2nd" quality of another, and vice versa. This is not the merchant's fault. Most plywood is imported, and the grading is done by the maker at the mills in the country from whence it comes. Being made from timber, a natural product, it will be understood that the quality of material available to the different makers is bound to vary with the caprice of nature.

In small quantities, plywood is sold at so much per panel, but where a considerable quantity is required it is cheaper to buy at so much per 100 feet super.

Do not expect the merchant to have the exact size you require, but always state the exact size in which it will be used. This helps the merchant to cut it in the most economical way and avoid unnecessary waste for which you will pay.

Approximate equivalent of millimetres in fractions of an inch:—

3 m/m = $\frac{1}{8}$ in.	9 m/m = $\frac{3}{8}$ in.
4 m/m = $\frac{1}{4}$ in.	12½ m/m = $\frac{1}{2}$ in.
4½ m/m = $\frac{3}{8}$ in. (bare)	15 m/m = $\frac{3}{4}$ in.
5 m/m = $\frac{1}{2}$ in. (full)	18 m/m = 1 in.
6 m/m = $\frac{1}{2}$ in.	25 m/m = 1 in.

QUEEN ANNE BEDSTEADS

FOR modern bedroom furniture walnut is deservedly popular, figured walnut of light colour being in particular demand. There is no better wood for working than walnut and it finishes well. Either of the bedstead designs shown in Fig. 1 and 2 would make a charming addition to a bedroom furnished in this beautiful wood. The low foot end looks light and graceful, while perfectly strong and serviceable. The inverted cabrioles are a feature of this style and serve to keep the bed-clothes in place. To obtain the best effect, nicely figured English walnut veneer should be applied vertically. If the cost of walnut prohibits its use, the bedstead would look equally well in solid mahogany, as in Fig. 1. Two sizes are given, viz. 4 ft. 6 ins. and 3 ft., the shaping of the head end being varied. Any of the standard makes of iron stocks can be fitted. Domes of silence are usual, but castors may be used instead.

CONSTRUCTION.—For the head in both designs, 1 in. thick board is intended, solid wood or plywood veneered. Plywood should be clamped at top and sides as shown (Fig. 10). When laying veneer, a cheap plain variety should be laid on the back to counteract the pull of the

treatment is similar. If plywood is used the edges are concealed by a cross-banded veneer applied all round. A lining piece may be applied at the back, if desired, to give a stouter appearance to the panel and to facilitate the application of the cross-veneer (Fig. 10). Otherwise the construction is exactly as in Fig. 3 (3 ft. size).

THE FOOT END CABRIOLE LEGS will probably present the greatest difficulty to the amateur. If he does not feel able to attempt the carving himself, he can at least cut the legs roughly to the required shape for the carver to deal with. The

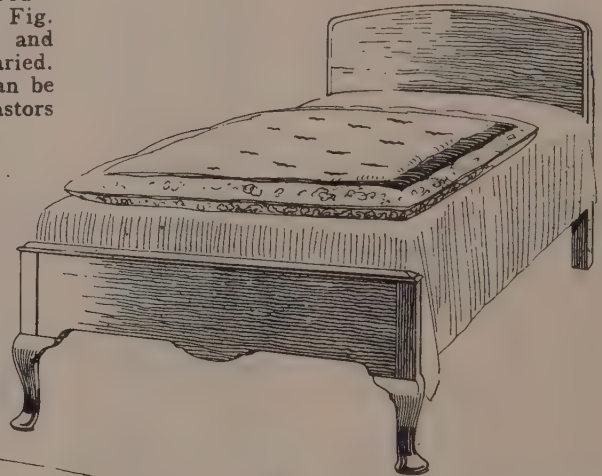


FIG. 1. 3 FT. SOLID BEDSTEAD.

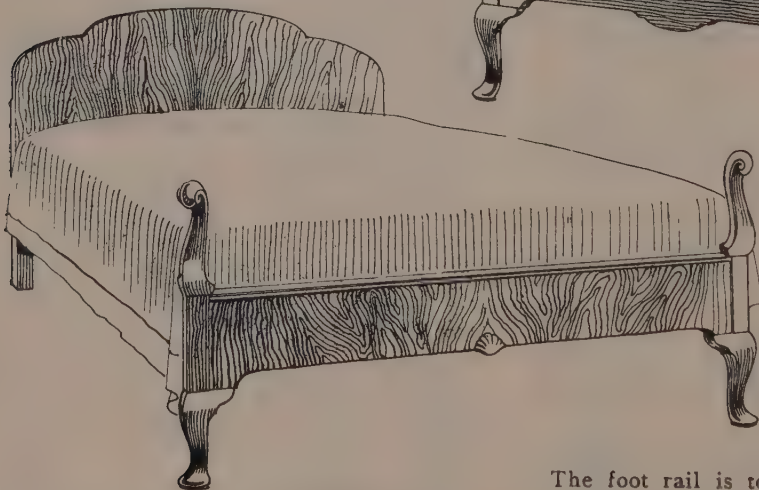


FIG. 2. 4 FT. 6 IN. VENEERED BEDSTEAD.

front. When veneering is completed, the panel is cut to shape and moulded (Figs. 3 and 5). After properly sandpapering, a groove is worked along the bottom edge for a cross-tongue (Fig. 5). The head posts are connected together by a wide stout rail (E), and mortised and tenoned. A corresponding groove is worked along the top of the rail to receive the cross-tongued panel, the posts being cut away above the rail and shaped at the top (Fig. 5). The panel (F) is fixed by glueing down to the rail (E) and screwing through the posts from the back, the screw heads being sunk and pelleted.

With the larger bedstead (Figs. 2 and 4) the

way to do this is shown in Fig. 8. A square block of stuff is required cut to the exact length. It is then marked on two sides (Fig. 7) and cut two ways. Fig. 8 shows it after cutting. Then let a carver finish the job for you.

The foot rail is tenoned to the foot legs. Cut good stout tenons. Line up the back with a strip of wood along the top edge and finish by glueing down a cope moulding, as in Fig. 9. Ear blocks are cut to shape and glued and screwed to the cabriole legs to complete the line. The construction of the foot is the same with both beds, the only difference being in the length of the rail (D), and the omission of the inverted cabriole on the smaller bedstead.

In a bedstead of this description a good effect is produced by pretty figured veneer carefully chosen and matched. As plywood core-stock is not too costly, it would pay to get the nicest figured veneer it is possible to obtain and exercise care in laying it. In this matter the articles on veneering in THE WOODWORKER last

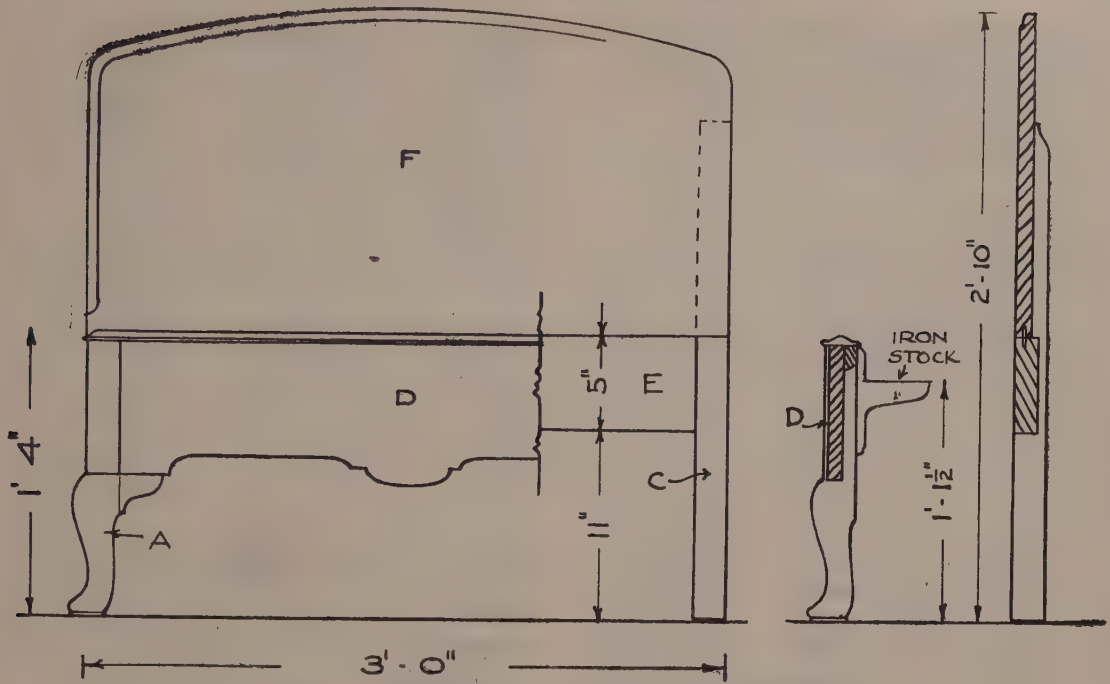


FIG. 3. ELEVATION AND SECTION OF 3 FT. BEDSTEAD.

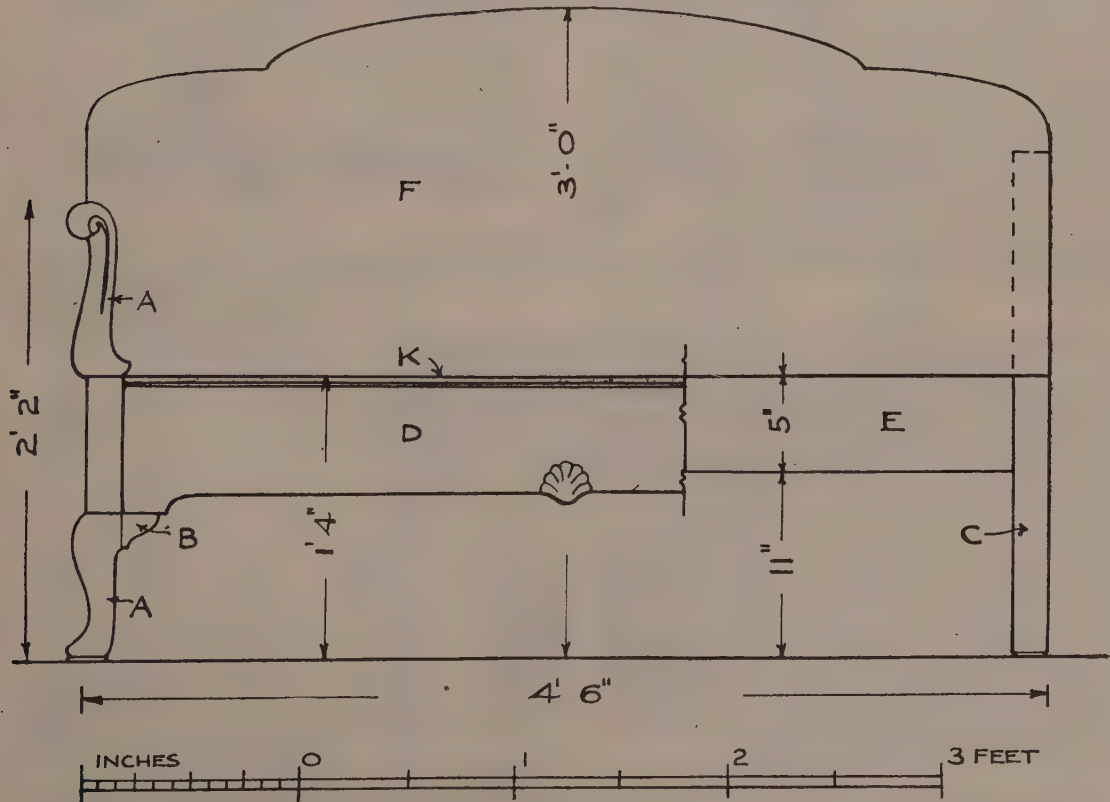


FIG. 4. ELEVATION OF 4 FT. 6 IN. BEDSTEAD, WITH SCALE.

year, commencing in June, would be found helpful.

IN FINISHING do not overload with polish. Stain lightly and allow the full beauty of the grain of the wood to appear.
(Cutting List is given below.)

LIGHT CARPENTRY DESIGNS.—

A new and completely revised edition of "Light Carpentry Designs" (*The Woodworker Series*), just published, should appeal strongly to younger craftsmen. Its forty-six pages of designs include the following:—Smoker's cabinets, woodworker's home bench, wireless cabinet for cone loud speaker, suit hanger, scooter with side car, pedestal wireless cabinet, bathroom stool with cork seat, kitchen cabinet, lean-to garden frame, stationery rack, hall hat rack, kitchen shelf and clothes airer, folding clothes airer, cycle stand, medicine cabinet, cake stand, doll's house with double opening front and verandah, display cabinet, table gramophone cabinet, boy's run-about truck, folding garden chairs, hat and coat rack, kitchen or scullery fitment, trousers press, plate rack, dog kennels (two designs), poultry house and run, smoker's table, saucepan rack, blackboard and easel, child's wheelbarrow, clothes line and posts, etc. Scale working diagrams, full directions and (where necessary) cutting lists are given. Price 2/6 net.

FIG. 5. SECTION THROUGH HEAD.

"HOUSEHOLD REPAIRS AND RENOVATIONS."—Here is virtually a new book, all the subjects revised, the chapters re-written and new illustrations prepared. Can you distemper a ceiling? Can you paint or wallpaper a room? Can you enamel a bath? Can you repair floors, doors, locks, sash lines, taps, etc.? If not, a book of the kind will save you pounds every year. Entirely new features, specially written and illustrated for this revised edition, are on the upkeep of electric bells, the overhauling of electric lighting system and on the installation and upkeep of wireless. To the man who knows how to handle tools in a simple way, even although he may not classify himself as an expert woodworker, the volume should prove indispensable. (Price 3/6 net.) Evans Bros. Ltd., Montague House, Russell Square, London, W.C.1.

CHILD'S FOLDING COT DESIGN.—See the February number, page 38.

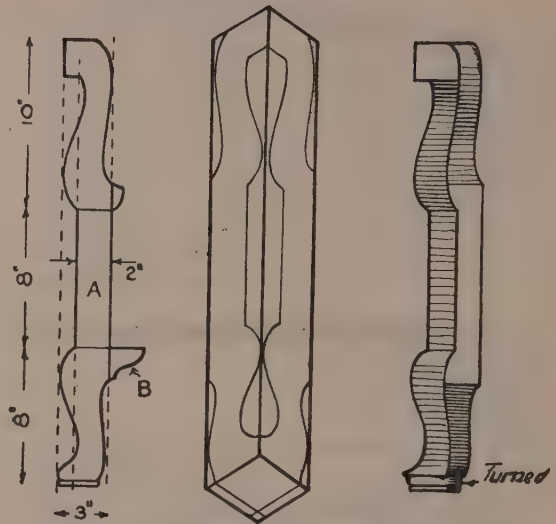
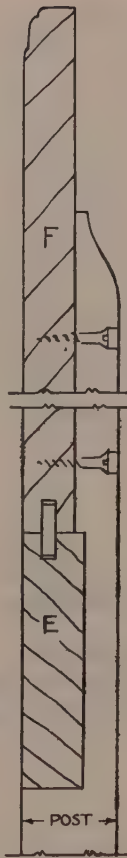


FIG. 6. SETTING OUT LEG.

FIG. 7. SQUARE BLOCK MARKED AFTER SAWING.

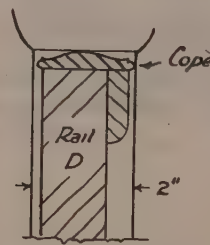


FIG. 9. SECTION THROUGH FOOT RAIL.

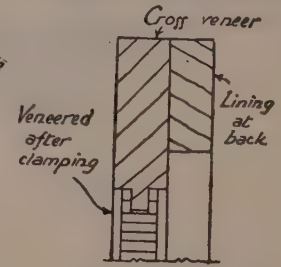


FIG. 10. CLAMPEL AND VENEERED PLY.

CUTTING LIST: FOR 4 FT. 6 INS. SIZE.

	Long. ft. ins.	Wide. ins.	Thick. ins.
A 2 Foot posts ...	2 2	3	3
B 1 For ears ...	0 9	3	2½
C 2 Head posts ...	2 5	2	1½
D 1 Foot rail ...	4 5	8	1½
E 1 Head rail ...	4 5	5	1½
F 1 Head panel ...	4 6	21	1
K 1 Cope moulding ...	4 2	2	½
L 1 Foot lining ...	4 2	1½	½
FOR 3 FT. SIZE.			
A 2 Foot posts ...	1 3½	3	3
B 1 For ears ...	0 9	3	2½
C 2 Head posts ...	2 5	2	1½
D 1 Foot rail ...	2 11	8	1½
E 1 Head rail ...	2 11	5	1½
F 1 Head panel ...	3 0	18	1
K 1 Foot cope ...	3 0½	2½	½
L 1 Foot lining ...	2 8	1½	½

The above sizes are net.

(78)

HOW TO MAKE A LOUD SPEAKER HORNE.—See the February number, page 50.

TIMBER MOULDINGS

WOOD mouldings have always been a prominent feature in decorative woodwork. Long before the advent of machinery these were made by hand, and a century ago architraves and many other mouldings were wrought up to 8 ins. and 9 ins. wide by means of hand tools. The method adopted for the production of the large architraves was to work them in sections. Pieces were run separately and glued up to form and complete the architrave. Designs were made in this way which it is impossible for machinery to accomplish, at all events at one operation. Here we give only the briefest outline of the operations.

The two chief machines employed for the manufacture of moulds are the vertical spindle and the four and six cutter machines. The capacity of the latter is confined to the running of parallel moulds, but the spindle machine has a much wider range or scope inasmuch as it can produce circular, irregular and parallel moulds. Of course, where long runs of, say, 2,000 to 6,000 feet are in question the six cutter can produce ten times more than the spindle machine, but for short runs of from 10 to 100 feet the spindle has the advantage of producing these faster than the four or six-cutters. This is due to the fact that the spindle machine cutters are much more readily adjusted and set up for any design of mould.

The revolving speed of blocks on both machines ranges from 4,000 to 6,000 revolutions per minute. No cavities can be made by the moulding machine, and no work can be done at a greater angle from the block than 90 degrees; so, if undercut moulds are required, the work must be run in two or more pieces and built up. As already stated the capacity or limitation of the six or four cutter machine is confined to parallel work.

A few ordinary specimens of work produced by moulding machines may be described. Fig. 1 illustrates a handrail design. If this pattern is cut in the square from the saw, the side heads have very heavy cutting to encounter. For this reason a slight bevel on each side would minimise and facilitate the cutting action of the revolving tools.

This design, of course is finished at one operation, and if in hard wood a faster feed than 20 feet per minute should not be given. However, if the edges are bevelled with reverse cutters and belts a feed speed of 30 feet can be applied, producing a finished surface as smooth as that accomplished at 20 feet feed when the cutters are acting against the grain.

Fig. 2 represents a section of an architrave mould, the width of which may range from 4½ ins. to 8 ins. The work in this case is nearly all performed by the upper head. This architrave can be more economically worked in two parts, namely, clamp and plate, as shown by the dividing line.

Moulds similar in design to Figs. 3 and 4 may be bevelled to a certain extent before being run, thereby saving wood and aiding the cutters. The greater saving is secured when these are taken from an oblong piece—two out, but Figs. 5, 6 and 7 should be wrought in the solid square. Fig. 8 should invariably be bevelled, *i.e.*, two extracted from the square or oblong piece.

THE PARALLEL MOULDING MACHINE is the most important in capabilities. When once set it can work thousands of feet of timber without being altered, an occasional "sharp up" (without detaching the cutters) being sufficient to enable the machine to work continually for many hours.

It is made in many types and sizes, and plain-dressed or mould pieces can be run from 1½ ins. by ½ in. to 12 ins. by 5 ins. (176)

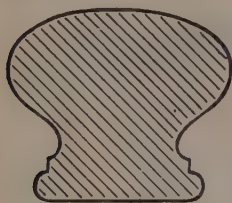


FIG. 1.—HANDRAIL.



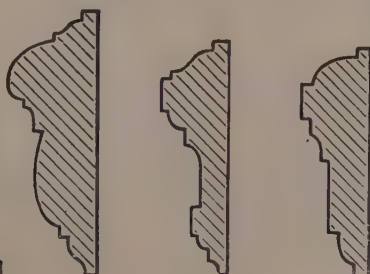
FIG. 2.—ARCHITRAVE IN TWO SECTIONS.



FIG. 3.—PANEL MOULD.



FIG. 4.—PANEL MOULD.



FIGS. 5, 6 AND 7.—DADO MOULDS



FIG. 8.—ARCHITRAVE MOULD.

BUILT-IN FURNITURE

3.—THE KITCHEN

THE majority of houses of twenty to thirty years ago had kitchens fitted with at least a dresser and often a commodious cupboard, but in these days of economy such fittings are only too often omitted. Yet they are really necessities, and we shall find our built-in furniture a particularly happy way of fitting up the kitchen. Two items that immediately suggest themselves are a dresser and a properly fitted kitchen cabinet, both of which lend themselves well to the purpose. The dresser is fitted with a series of plain shelves fixed to the walls, and has cupboard and drawer space below. The cabinet has a hinged fall enclosing part of the top cupboard, and can be fitted up as desired to hold boxes, jars, and

other containers. The best finish is probably white enamel, although this is a point on which the reader can please himself.

CABINET.—Take the cabinet first. This is shown fitted to the right of the fireplace (see plan in Fig. 4), although there is no special point in this. The main sizes are given in Fig. 3. These can be adapted to suit special requirements. The whole job is made up in two carcasses as given in Fig. 5. The lower should be made first. It will be seen from the plan in Fig. 3 that the right-hand leg stands away from the wall by about 1 in. to enable it to clear the skirting. A scribing piece screwed on to the side keeps out all dust and enables a close fit to be made. On



FIG. 1.—FITTED KITCHEN DRESSER.

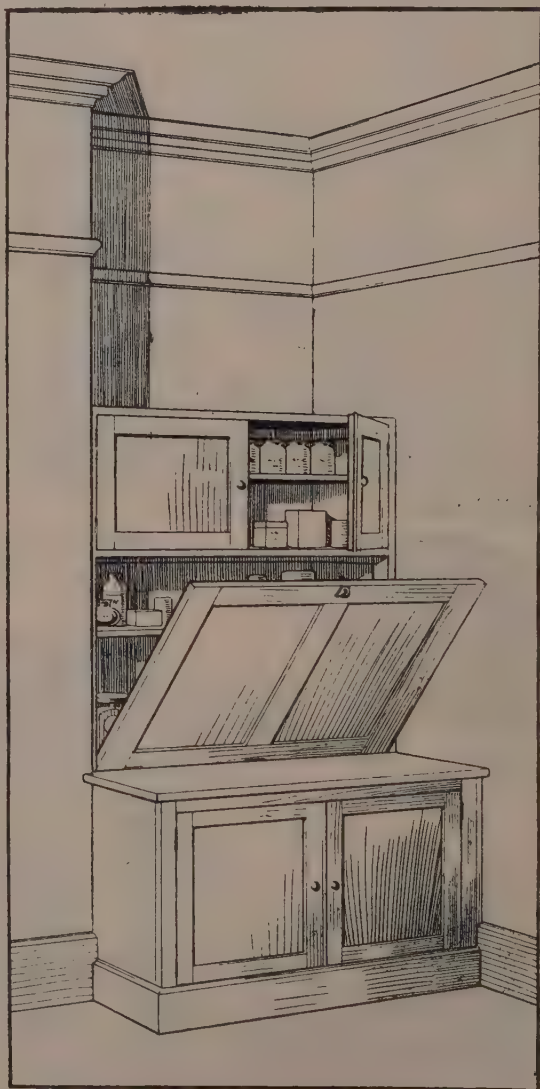
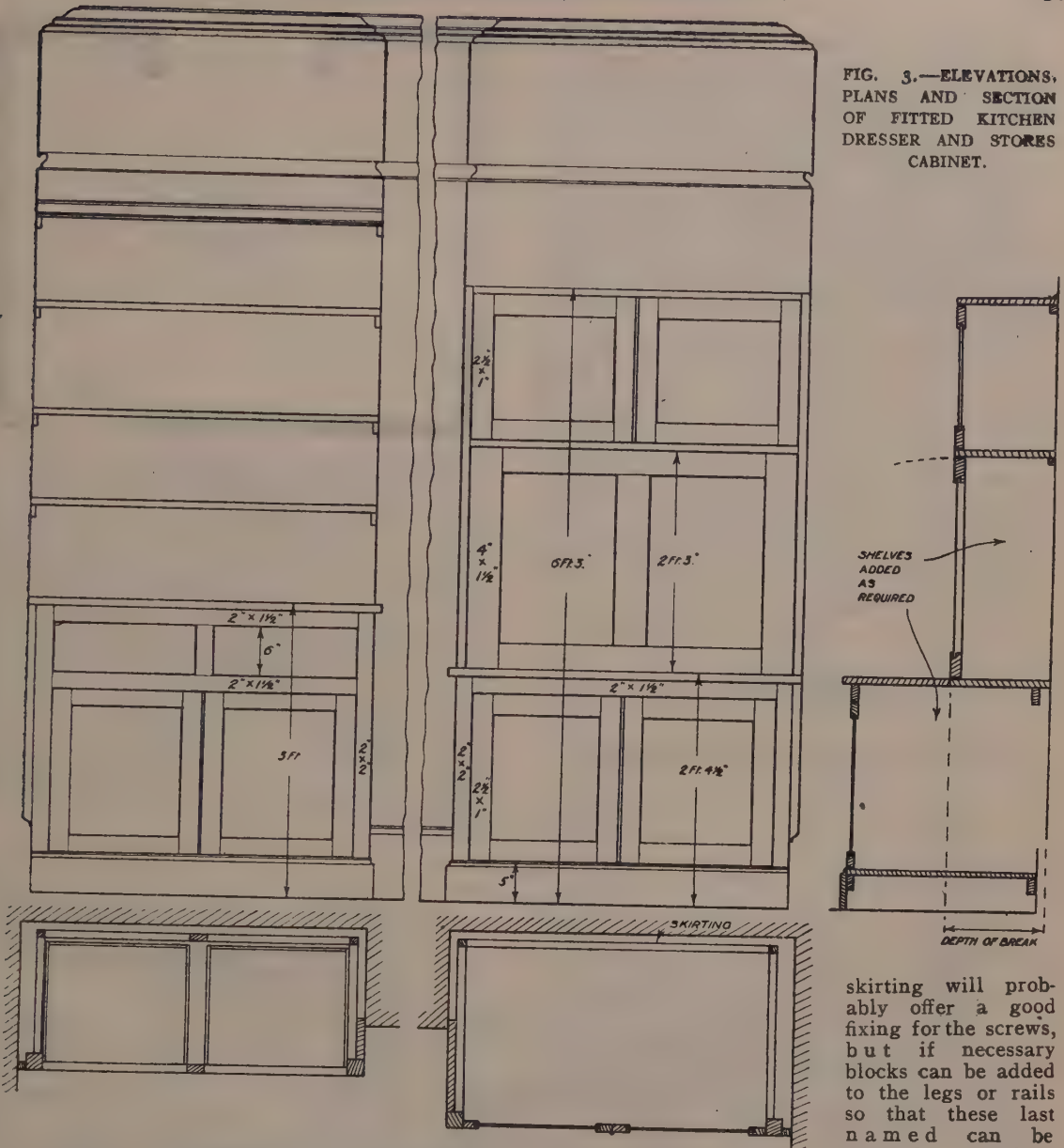


FIG. 2.—FITTED KITCHEN CABINET.

FIG. 3.—ELEVATIONS, PLANS AND SECTION OF FITTED KITCHEN DRESSER AND STORES CABINET.



the left-hand side the post is level with the break in the wall, and a side reaching to just beyond the corner is screwed on. At both sides the rails are level with the inner surfaces of the legs. This clears the back legs of the skirting.

The main carcase is a straightforward piece of work, the various rails being simply tenoned into the legs. An additional rail running from back to front is advisable at the top, as it will help to support the bottom of the upper carcase to which the fall is hinged. As soon as the carcase has been assembled it can be offered in position, and the scribing piece and left-hand side fitted. The

driven into the walls. It may be necessary to allow the bottom to run beyond the rails completely to fill up the space. This depends upon the skirting. The back of the top finishes level with the chimney breast. Screws driven upwards through the rails hold it. From Fig. 5 it will be noticed that the bottom rests on the rails, including that at the front. The joint is hidden by the plinth. The doors call for no special attention, being plain frames with grooved-in panels.

Fig. 5 shows the top carcase. It consists of two uprights about 3 ins. by 1 in., a top, a shelf,

and a bottom. Details of how they are joined are given in Fig. 6. The top and bottom are dovetailed and the shelf has double tenons. All three should be finished the same length. If there is a slight difference in the distance between the walls at various heights, the smallest distance should be taken. Glue the parts together and place the whole in position. The bottom, of course, fits immediately behind the top of the lower carcase. When definitely placed battens can be nailed to the walls under the top and shelf. These provide a strong fixing to which to nail. The top doors are made similarly to those at the bottom.

FOR THE FALL it is advisable to use $1\frac{1}{2}$ in. or $1\frac{1}{4}$ in. stuff for the main framing and $\frac{3}{4}$ in. panels. If it is to be used as a table top it has to sustain a fair weight. The framing is grooved and the panels have tongues worked at the edges so that the fall finishes flush inside. A slight chamfer is worked at the edges of both framing and panels. The object of this is to hide any gap that may be caused by shrinkage of the panels. Note that the hinges are let into both the framing and the bottom. This prevents their being strained since the framing lies flat on the top when opened.

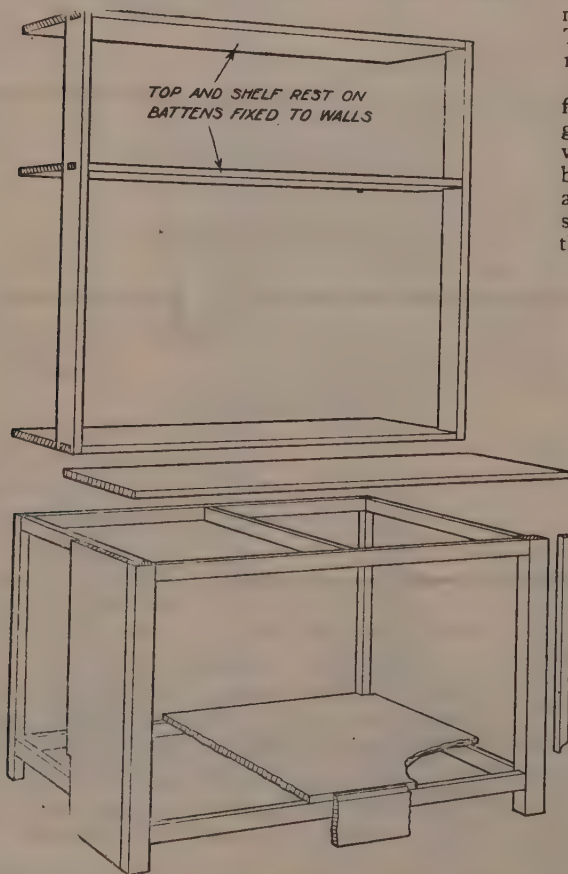


FIG. 5.—CONSTRUCTION OF FITTED KITCHEN CABINET.



FIG. 4.—PLAN OF TYPICAL KITCHEN SHOWING RECESSES AT SIDES OF FIREPLACE.

Shelves and drawers can be added as desired.

DRESSER.—The main framework of the lower part of the dresser is made similarly to that of the others. It is 3 ft. high, and a drawer rail is added. It is a good plan to add side rails slightly higher than the drawer rail as these serve to support the runners, and at the same time act as guides. The top runs from front to back and the right-hand edge is cut to fit round the wall-break.

To support the dresser shelves, battens are fixed to both side and back walls. A chamfered groove must be worked along each shelf to prevent the plates from slipping forward. This is a better method than fixing small slips of wood along. If the cornice moulding is wider than the shelf it should be fixed level at the top so that the top can always be dusted easily. (180)

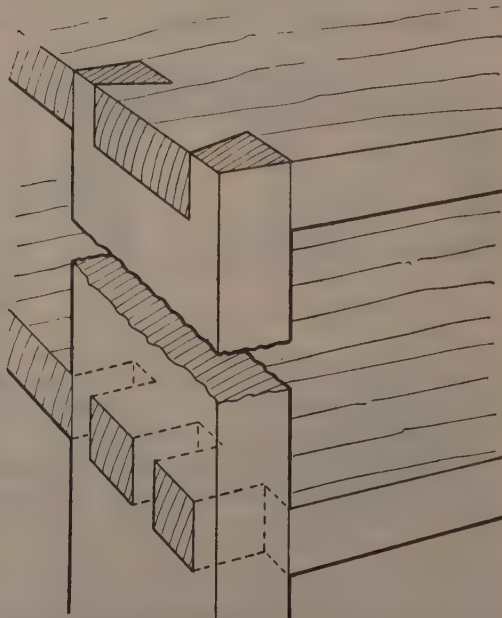


FIG. 6.—CONSTRUCTION OF TOP OF CARCASE

POLISHING NOTES

STRIPPING AND BLEACHING

THE polisher is frequently called upon to renovate old work which is in such a bad condition that it is necessary to strip or remove all trace of the old polish or varnish before he can start the renovation proper.

Home-Made Strippers.

If a piece of furniture appears to have been legitimately french polished or spirit varnished the simplest but most expensive way to strip it is to give the job a coat of methylated spirits, which may be applied by thoroughly soaking an open woven rag. Use the soaked rag freely on the surface, and as the gums are re-dissolved the old body of polish or spirit varnish will soften or jellyfy, when it may be removed by the aid of a painter's scraper knife or the dull edge of a piece of steel plate. After removing the heavy body of polish and varnish saturate a rag in methylated spirits and rub off the remaining polish by feeding the rag with powdered pumice stone. Allow the work to harden for a day after stripping, and then ease down the surface with No. 1 grade glasspaper and commence the repolishing. Another simple but somewhat fierce way of stripping polish and varnish is by the use of strong liquid ammonia. The strongest liquid ammonia is known and purchased as .880, and this liquid should be freely applied to the work with a small household mop. The work should be stripped in the open air because the ammonia will have an injurious effect both to the eyes and hands. Follow the previous treatment with regard to removing the softened body of polish, etc. The one great trouble with ammonia when used as a stripping agent is that it has a tendency to darken the woods on which it is used. When the ammonia stripper has been used and the work has dried out, wipe the job over with raw linseed oil before proceeding to repolish.

Another good home-made stripper is to mix $\frac{1}{4}$ lb. crude soft soap, $\frac{1}{2}$ lb. household soda and $\frac{3}{4}$ lb. rock or, as it is often called, lump ammonia in one gallon of hot water. When thoroughly dissolved apply it lukewarm to the work with an old bristle brush. Leave this solvent on the work until the polish or varnish softens, then soak a piece of clean engine waste or rag in the liquid and proceed to rub off the softened body with the waste, which may be fed with very finely powdered bathbrick or pumice stone powder. Repeat the process until you get down to the bare wood. When stripping the woodwork of a shop window, the sill, the carved corners and the half turning will have to be scrubbed repeatedly with a stiff scrubbing brush frequently dipped into the liquid stripper.

Proprietary Strippers.

The modern way of removing varnish, paint and polish is to use any good proprietary brand of stripper such as electric stripper, pyrol or wypway. When the tin is opened the solvent should be well stirred and spread on to the sur-

face of the varnished wood, giving it a heavy and free coat. Allow the stripper to act for from fifteen minutes to an hour according to the number of coats to be removed. Examine from time to time the surface which is being treated, never allowing the stripping solvent to dry off. When the maximum degree of softness is attained, scrape off the jellified coats with a painter's scraper knife. If all the coatings of, say, old paint are not removed give a second coat of the stripper and repeat the process. The writer recently removed nine coats of paint by this method before he got down to the real oak. Wash down the work with naphtha, turpentine or methylated spirits, wiping the job clean with a soft cloth.

Bleaching.

If, after stripping and thoroughly drying, the work appears to be slightly darker in colour, it may be necessary to bleach it with a solution of oxalic acid in the proportion of 1 oz. oxalic acid dissolved in $1\frac{1}{2}$ pints of hot water. This bleaching mixture should, however, only be lukewarm when a coat of it is applied to the woodwork. Allow the bleach to dry, and if necessary repeat the applications two or three times. Do not, however, expect it to make old black oak white again or to bleach mahogany to the colour of yellow pine. The bleaching effect is restricted to tonal qualities and not the alteration of the colour. This bleach must be used on the bare wood and, when it is completed and the work has naturally dried out, the action of the oxalic acid must be arrested and nullified by washing the wood all over with either common vinegar or a solution of magnesia. This same bleach will slightly lighten, say, a mahogany job which has been stained too deeply, provided it is applied before a body of polish is put on the work. The same quantity of oxalic acid dissolved in a pint of hot methylated spirits will lighten fumed oak that has been left too long on the fuming box. Peroxide of hydrogen is useless for bleaching stained woodwork.

When stripping and bleaching floors use the hot water oxalic acid solution immediately after the stripper has been scraped off the floor and whilst the floor is still wet with old stain and stripping solvent. You will thus get a quicker and better effect on rough work of this class. Remember that oxalic acid is a deadly poison and be careful in its use. Keep it off your hands and, when glasspapering dry wood bleached with this agent, do not allow the dust to get into your lungs, eyes or throat. Wear a respirator and rubber gloves, or better still apply the bleach with a small home-made rag mop of the pot-washer type. Light oak work or similar jobs that cannot be bleached up may have any small dark patches painted out with a mixture of french polish to which a little dry flake white powder has been added. The usual polishing or spirit varnishing process will take on the top of this home-made polish or paint. (184)

THE HANDICRAFT CENTRE

SOME SIMPLE METHODS OF DRAWER CONSTRUCTION

LAST month we dealt with the construction of a drawer on traditional and orthodox lines.

The following article deals with alternative methods employed in drawer construction, and in most instances the drawer can be constructed by those whose technical skill and ability are limited. Alternative methods of joining the sides of the drawer to the front may first be considered.

Fig. 1 shows the side fitting into a rebate on the

tion of screws or dowels adds greatly to the rigidity. For those who lack the confidence to attack the lap-dovetail joint, a similar result may be obtained by following the illustration, Fig. 5. One can see from this that the ordinary box dovetail is first constructed. Then a thin front piece (A), approximately $\frac{1}{4}$ in. thick, is glued on to the front. The piece (A) may be a veneer and thus lends itself to the artistic treatment such as quartering, stringing, etc.

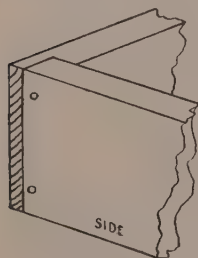


FIG. 1.—DRAWER SIDE REBATED.

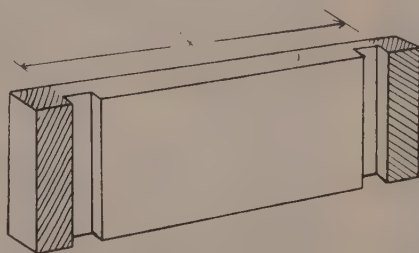


FIG. 2.—METHOD OF HOUSING (ILLUSTRATION SHOWS DRAWER FRONT).

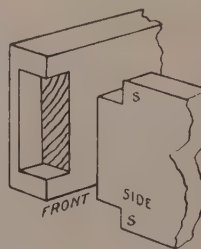


FIG. 3.—USE OF SHOULDERS.

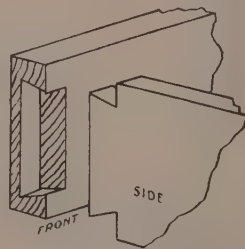


FIG. 4.—MODIFIED LAP-DOVETAIL.

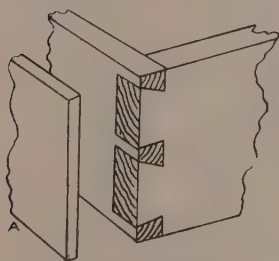


FIG. 5.—FRONT OVERLAID TO HIDE JOINT.

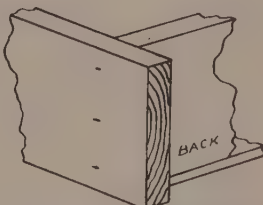


FIG. 6.—BACK NAILED (FOR CHEAPEST WORK).

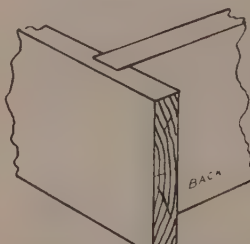


FIG. 7.—BACK HOUSED TO SIDE.

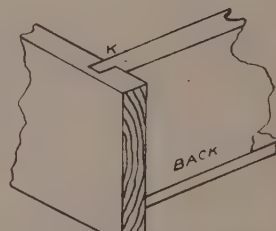


FIG. 8.—BACK SHOULDERED AND HOUSED.

end grain of the front. The rebate may be cut in the ordinary way, or a more simple method is to have the material for the front longer than required (see Fig. 2). Cut two housings or grooves in the front, distance X being the width of the drawer. When the sides are glued into the housing the shaded portions may be cut off. It is as well to reinforce the glue by either nails, screws or dowels.

A more rigid joint, however, may be used and is illustrated in Fig. 3. Here the shoulders (S) give additional strength. In this case the cutting of the recess in the end grain of the front may be commenced in a similar manner to that illustrated in Figs. 10 and 11, which appeared in the February number, page 63.

A method which is a modification of the lap-dovetail is illustrated in Fig. 4. Instead of three dovetails being employed as is customary, only one large dovetail is used. This is quite a good method, but of course lacks the bracing properties of the additional pins and tails. The inser-

Having thus practically exhausted the various methods of dealing with the front and sides we may turn to alternative methods of joining the back to the sides. The most elementary method is to nail the back between the sides as illustrated in Fig. 6. Such a method is to be deprecated since it is crude and would be looked upon neither with pride nor favour by any reader.

Fig. 7 illustrates a good and simple method of achieving our object and is well within the scope of most amateur woodworkers. A similar, though more difficult method is employed at Fig. 8, the shoulder (K) assisting a good deal when rigidity is under consideration.

The slip method as described in the previous article is the most simple and best to employ for inserting the bottom into the drawer, and it will be generally understood that the "alternatives" suggested above are only for work of a light and modest type and are not recommended for genuine cabinet work. The February article (page 62) should be read in conjunction. (178)

THE CRAFTSMAN

THE USE OF PLYWOOD FOR LIGHT DOOR CONSTRUCTION

THREE-PLY wood, veneered either on one or both sides with oak, walnut and mahogany facings, can nowadays be purchased at a very reasonable price, and much of it comes to the craftsman all ready papered.

For doors which require framings of not less than $\frac{1}{2}$ -in. thickness, such as the modern Jacobean sideboard, he may procure timber which is rebated on each side, and he may then mitre the door frame (picture fashion) and fix the panel so as to show a bead and butt finish. This method is indicated in Fig. 1. The light framing is rebated and an $\frac{1}{8}$ -in. bead is worked on to the edges. Afterwards it is mitred and glued up, the necessary pressure to hold the corners being exerted by binding it with strong twine or tape. When the glue is set the corners are secured by driving into them $1\frac{1}{4}$ in. or $1\frac{1}{2}$ in. pin nails, and the face panel may be neatly fitted and glued down.

To secure this panel and strengthen the frame, a few pine blocks may be glued around the inside edges (see enlarged sketch). Into the back of the frame another piece of plywood is fixed by glueing it into the rebate and fastening it with fine panel pins. This method gives a strong and light door having a massive appearance when the door is opened.

Doors up to 2 ft. square having frames $1\frac{1}{2}$ ins. or $1\frac{3}{4}$ in. thick on the edge may be quickly made in this manner, especially so if the worker has access to a hand mitre trimming machine.

At Fig. 2 a variation of the method is given, and in this case the outside framework is only rebated on the face side. The ply panel is glued and sprigged in position, and to hide the joint line the worker glues over it the necessary lengths of pearl beading which may be purchased at about $1\frac{1}{4}$ d. per foot. Here you have a light frame $\frac{1}{2}$ in. or $\frac{3}{4}$ in. thick which may be used on a Jacobean cabinet or sideboard. If such a frame be of great length and the plywood be only 3 m.m. in thickness the panel will have a tendency to "drum" (or bounce), but this

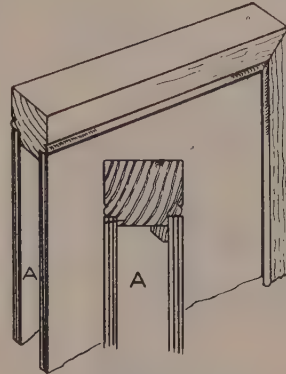


FIG. 1. MITRE-FRAMED DOOR WITH PLYWOOD PANELS AT BOTH SIDES.

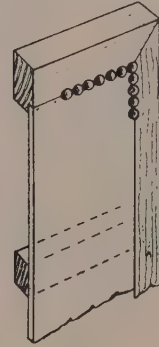


FIG. 2. DOOR WITH SINGLE PLYWOOD PANEL.



FIG. 3.

can be avoided by glueing inside the door frame a thin piece of wood which will give to the interior a two-panelled effect.

Doors up to 3 ft. 3 ins. long by 16 ins. wide may be made by this method. For smaller doors there will be no need to use the cross bar as indicated by the dotted lines in Fig. 2.

Readers who cannot procure rebated stuff will find that the method given at Fig. 3 is the simplest. Make the mitred frame with all square edges and glue it up. Procure the ready-made ovolo moulding (B), which measures about $\frac{1}{2}$ in. square and which is sold at a penny a foot. Glue and fix (with panel pins) the moulding to the inner edges of the door frame so that it will allow the 3 m.m. or 5 m.m. plywood to stand flush with the face of the door frame. Next glue in your plywood panel and afterwards fix your pearl beading over the joint to hide the joining. Both Figs. 2 and 3 give quick and efficient construction for light doors. (174)

Japanese Oak

DURING the last twelve years there has been a marked improvement in the quality of the Japanese oak imported into Great Britain, and at the present time this valuable and beautiful timber can be obtained in all the reasonable furniture wood sizes in a thoroughly seasoned condition. The wood is specially suitable for the panelling of rooms, the making of bank, shop and office fittings and for household furniture, such as bedroom suites, sideboards, gramophone and wireless cabinets, dining tables, hall furniture and fittings, Church interior work, etc. The wood is mild and kind to work, and is much more readily planed and scraped up than some of the American red oak boards and planks. It is for this reason that it should be more popular with the small wholesale tradesman, the home

worker and the amateur joiner and cabinet-maker. It can be purchased to show a rich grain and "flash," which is obtained by judiciously sawing up the log to obtain the best figure effect and to prevent any tendency to undue warping and shrinkage. Japanese oak takes kindly to the modern wood finishing processes such as silver grey oak, Jacobean oak, limed oak, fumed oak and golden oak. We have watched with interest a billiard room panelled five years ago with light oak wood of the Japanese variety. In spite of the fact that the room is central heated (which causes a tendency towards undue shrinkage), the work is to-day quite sound and has the appearance of being panelled with the finest quality Austrian wainscot oak. The wood is now frequently employed for the panelling of public buildings, and quantities of it were used for the interior wood-work of the London County Hall. (189)

WOODWORK PUZZLES

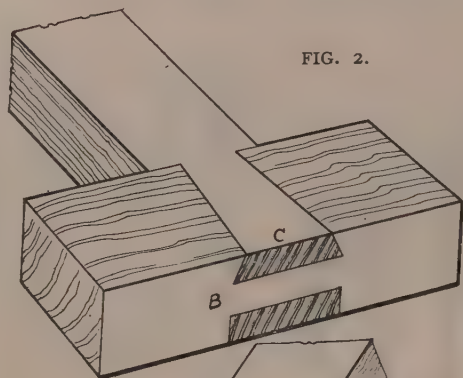


FIG. 2.

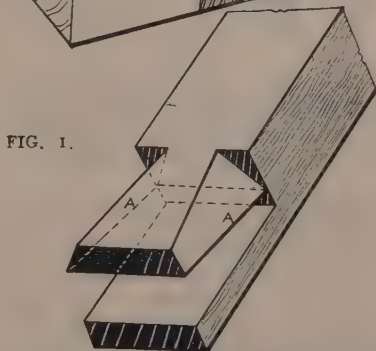


FIG. 1.

FIGS. 1 AND 2.—PUZZLE DOVETAIL JOINT.

HERE is an interesting puzzle joint. Take two pieces of wood such as mahogany, walnut or birch, about 6 ins. long by $1\frac{1}{4}$ in. wide and $1\frac{1}{4}$ in. thick. Truly plane them up and then set out and make the tenon and dovetailed piece shown at Fig. 1. Carefully note that the edges A, A are parallel to each other in spite of the fact that they slope in one direction. Next mark out and cut the cross piece B, Fig. 2, to fit its corresponding piece. The joint will go together in a somewhat diagonal direction as it is pushed into position from the back; when closed it will appear as at Fig. 2.

An improvement after you have gained experience in the making of this joint is to make a similar joint, leaving the face (B) blind; it then does not show the bevelling of the dovetail at the end C. In other words, keep the line C, say, $\frac{1}{4}$ in. back from the face of B. The joint should be glued up and it will then appear to the average worker that it is an impossible proposition.

At Fig. 3 we give a sketch of a completed Chinese block or cross puzzle in which the various pieces of wood go together diagonally. Plane up a piece of hardwood (which may be about 14 ins. or 15 ins. long) so that it measures on its end half an inch square. Cut the wood into six pieces which measure about 2½ ins. long, and then proceed to mark out, saw and pare up with the chisel two pieces like sketch A, three pieces like B, and one key piece as C. Now fit these

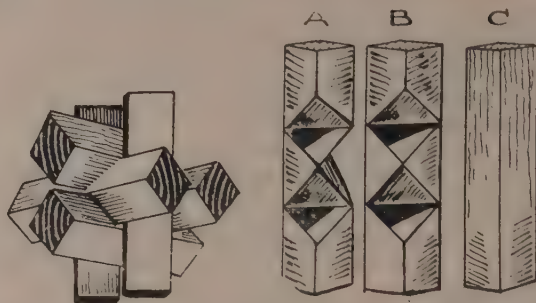


FIG. 3.—DIAGONAL CHINESE CROSS PUZZLE. (TWO PIECES REQUIRED OF A, THREE OF B AND ONE OF C.)

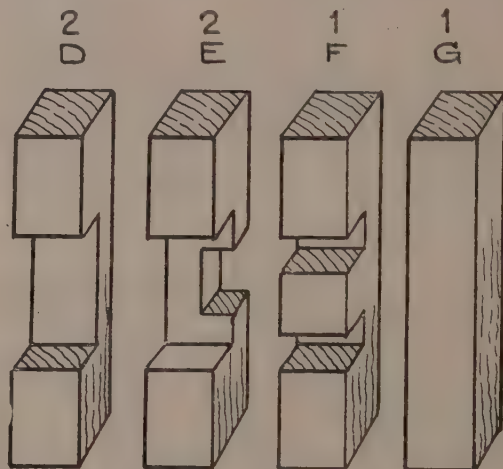


FIG. 4.—ANOTHER CHINESE CROSS. (TWO PIECES REQUIRED OF D, TWO OF E, AND ONE EACH OF F AND G.)

together to make the completed cross. We are not giving the solution; this is left to the reader.

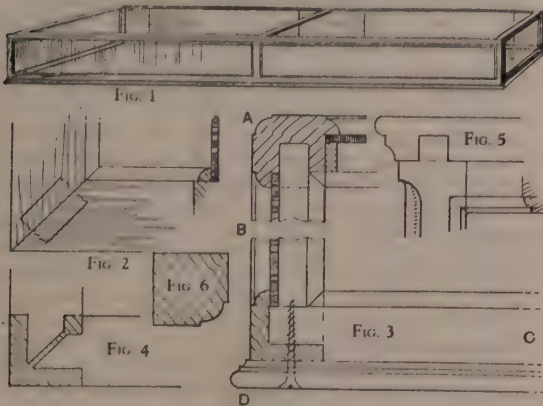
Fig. 4 shows a combination of six pieces which, when fitted together, will make the Chinese cross similar to the one illustrated at Fig. 13 on page 379 of the December, 1929 number. Plane up the strip of hardwood (birch preferred) so that it measures $\frac{1}{4}$ in. square at the end and proceed to mark out and make two pieces like D, two like E, one like F, and one piece like G. Put the pieces together to form the Chinese cross. Again we do not give the solution, and the reference to the puzzle shown in the December number is merely given as a guide to the form of the cross.

FOR THE APRIL NUMBER we have ready designs for a new type of gentleman's dressing chest, a labour-saving kitchen fitment, a small living room buffet, a draw-extension table, household steps, lych gate, etc. Other articles in preparation are on woodwork mouldings, stair construction, polishing relief work, etc.

THE QUESTION BOX

QUESTIONS only of general interest can be answered in these columns. Readers will kindly note:—(1) Detailed replies or sketches cannot under any circumstances be sent by post; but, as the Editor may require further information, a stamped addressed envelope should be enclosed. (2) Full particulars of what is required should be clearly stated, and (if possible) a rough sketch with over-all sizes enclosed. (3) Questions of purely personal interest cannot be dealt with in these columns.

NOTE.—With each Query must be sent a Coupon (see foot of page iv. of cover). All queries to be addressed: Editor, THE WOODWORKER, Montague House, Russell Square, London, W.C.1.



DETAILS OF COUNTER SHOWCASE.

Counter Showcase

R.E.W.C. (Amersham) asks how to construct an all-glass showcase, 7 ft. long by 2 ft. 6 ins. wide by 8 ins. high, suitable for standing on a counter.

REPLY.—Such a case might be made up in the lightest manner of 1 in. by 1 in. stuff, with a separately framed top 1½ ins. by 1 in. and a solid bottom of full 1 in. thickness. Such thickness of material would depend considerably upon the glazing itself for keeping the whole thing stiff and square, whilst allowing the utmost capacity inside. As seen, the case has a glazed top divided in centre, both ends and front being also glazed to agree. As the back is required to be fitted with a couple of fall doors supported by small brass chains, it would be convenient to fit pieces about 3 ins. or 4 ins. wide at ends and a piece about 7 ins. in centre for these doors to shut upon when up, the doors themselves being hinged with brass butts or lengths of piano hinge to a bottom rail of 1 in. by 1 in. stuff, which will be tenoned into position to the end uprights of case. Thickness for such doors might be ¾ in. in solid mahogany, either in one straight run of grain, or preferably clamped at each end with 2 in. clamps tongued on. With regard to detail of finish, the separate top framing can be mitred at corners and tongued with hardwood cross-cut tongues through the joint as at Fig. 2, the glazed opening being also moulded ovolo as an extra finish. If it is desired to elaborate this top, it might be moulded to the section indicated (A, Fig. 3), the outer angle carrying a ¼ in. ovolo throughout. The end uprights (B) would be tenoned into this upper framing and at bottom will be mortised to receive a tenon upon lower rail (C). The ¼ in. ovolo would be worked all round each glazed opening of the

front in addition to the ends. The centre upright of front, fitted in line with the top division, will be tenoned into position top and bottom. The case bottom (D) is shown as moulded broken ogee, but might be finished by merely rounding if preferred, to be screwed into position from under. The tenons on C, front and ends, will be mitred to meet in the end uprights (Fig. 4).

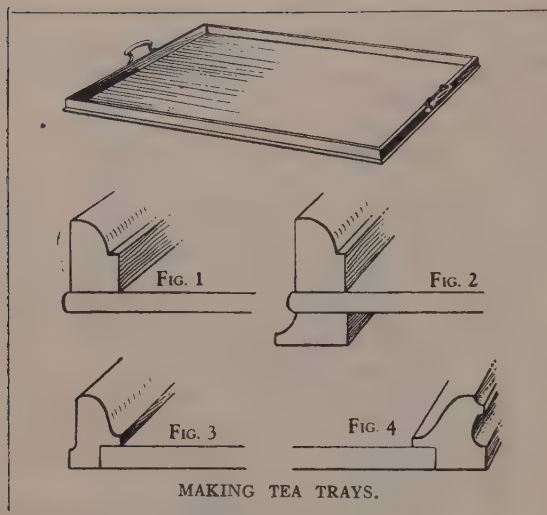
A slight alternative treatment is given at Fig. 5, the top framing in this case being moulded broken ogee and the outer angles of end uprights cut back and rounded as shown. A section of the upright showing outer corner so finished is given at Fig. 6.

We think you would probably find it most convenient to cover plywood with the material for the bottom. The material could be baize, billiard cloth or velvet, turned over at edges and well glued down after tautening. (145)

Darkening Silky Oak

H. L. B. (Essex) has made up a bedstead in Australian silky oak and wishes to give it a linseed oil and wax polish. The foot end is considerably darker than the head, and has a pinker shade. Can he bleach the darker wood to match the lighter, or is there anything he can add to his linseed oil to give a pinker tinge?

REPLY.—The bleaching of oak is occasionally carried out successfully by the use of oxalic acid. A strong solution of oxalic acid (2 ozs. to one pint of water) is swabbed on to the oak and allowed to dry. The process is repeated and, when this second coat has dried, the work wiped over with vinegar. We do not think, however, that the process would be successful with silky oak and if, as we presume from your remarks, you have already oiled the work it would be a failure. Oxalic acid is poison and the process is rather dangerous for an amateur. We should therefore advise you to darken the light portions of the oak to match the darker parts. Obtain threepennyworth of alkanut root, bruise it and place it in a jam jar, pouring on 1 pint of raw linseed oil and 2 ozs. pure American turpentine. Let the jar stand for three days, stirring up the digest with a piece of stick from time to time. You will now have a reddish oil which will darken and give to your work a light reddish mahogany coloured tinge. Red sanders yields a dye of a bright garnet-red colour and this might answer your purpose if soaked in oil. You will have to do a little experimental work on some small cuttings of the wood you are using. Bear in mind that the action of raw linseed oil has a darkening influence on all wood. (146)



Tea Trays

B. B. (Transvaal) asks how to make an easy, neat and serviceable tea tray.

REPLY.—Tea trays can be made to various sizes to meet general requirements, dimensions that suit ordinary purposes being 12 ins. by 9 ins., 14 ins. by 10 ins., 16 ins. by 12 ins., 18 ins. by 10 ins., 12 ins. or 14 ins., and for a large size 20 ins. by 16 ins. In the simplest manner a useful tray can be made up of $\frac{1}{4}$ in. wood, or good plywood of 5 mm. or 7 mm. thickness, to the section shown at Fig. 1. The rim is formed by a length of ordinary sash bead, mitred at angles and glued and screwed into position from under. This makes a light tray of the plain type but could be somewhat elaborated by screwing an additional moulded section ($\frac{1}{8}$ in. would serve) mitred up and screwed to form a frame under the bottom, as at Fig. 2. It is, however, possible to purchase lengths of mould specially produced for making up as tea tray finish, suitable sections being given at Figs. 3 and 4. Some sections are rebated for the bottom to bed in flush, which gives a neater result, but is not actually so strong as when there is a projecting bottom, owing to the shallowness of rebate allowed for screwing.

Special handles for trays are obtainable in several designs, prices varying according to quality and finish.

Whilst plywood can be used for the tray bottoms, it is of course liable both to blister and split if moisture reaches the glue or other adhesive, and it will therefore be necessary to varnish this thoroughly in order to avoid such a result. On the other hand plywood is often much better to use than solid wood of $\frac{1}{4}$ in. thickness if the latter is not thoroughly seasoned, owing to its liability to shrinkage under climatic conditions. French polish will afford the best possible surface but is liable to develop a "bloom" from dampness, and we think you will do well to finish with a coat of white hard varnish. (183)

Sewing Machine Table

S. C. C. (Peckham) wishes to make a special table for a hand-sewing machine.

REPLY.—The sketch enclosed with your letter showing a table with knee-hole and fitted with a set of three drawers is fairly explicit, and can be worked out to the dimensions you suggest, i.e., 2 ft. 8 ins. long over posts, 1 ft. 5 ins. deep back to front and 2 ft. 6 ins. to 2 ft. 8 ins. high. The table top is $\frac{3}{8}$ in. or $\frac{1}{2}$ in. net, to be moulded "thumb" on all sides. The flap on left-hand side may be allowed a drop of 10 ins. to 12 ins. and when up will be supported by folding brackets or compact slides to pull out, for which pieces of 2 ins. high by $\frac{1}{4}$ in. net thickness will be suitable. The carcase ends will be framed up to form two panels, thickness of the stuff being $\frac{1}{2}$ in. by 2 ins. The bottom rail of ends may be cut 3 ins. wide, the lower $1\frac{1}{2}$ in. being shaped by way of relief and the framing grooved to receive panels of 5 mm. plywood. Drawer fronts will be of $\frac{1}{4}$ in. thickness, varying in height from 4 ins. to 12 ins. Immediately under the table top two rails (front and back) should be fitted, dovetailed into ends as stiffeners, and through these the table top may be screwed.

As you wish to mount a hand-machine over the knee-hole and at the same time contrive that it shall fold down and leave the table top clear, we think the simplest method would be to cut the table top to form an opening slightly in excess of the dimensions of your machine, namely, 1 ft. 6 ins. long by $8\frac{1}{2}$ ins. wide, forming this portion as a lid to be hinged into position, or it might be grooved in to slide out towards the back. The machine thus mounted would then be pulled forward to lift into a well of sufficient depth to receive the 12 ins. height of the machine clear of this thickness of table top, say, $12\frac{1}{2}$ ins. to include clearance. A separate box would of course have to be made and screwed up into position under table top to form this well, and allowance should be made to adjust the well close behind these framing rails. (182)



Veneered Panels at Bed Ends

J.F.J. (Bury St. Edmunds) asks how to fix small veneered panels to make up the two ends of a bedstead.

REPLY.—If you wish to fix small panels of veneer instead of having one large panel, you could back them by a framing so put together that the meeting edges of the panels would bed upon a stile or rail as shown at Fig. 2. The veneering of these small panels might be laid on a seven-ply or stouter plywood. Provided that the edges were perfect, it would prove a fairly simple matter to glue up and screw the parts together, so as to make up a pleasingly grained surface without the usual risks of blistering or slitting that come with the laying of the larger surface in one piece. The back framing might be made up of rails of $\frac{7}{8}$ in. or $1\frac{1}{8}$ in. thickness, mortised and tenoned together and with the inner stiles and rail halved together where they cross and stubbed in to the outer framing which, in the diagram, shows as with a 4 in. wide bottom rail. If to be cut with the 3 ins. hollow corners at top the whole thing may be finished by lengths of $\frac{1}{4}$ in. flat of a width to cover the thickness of rails and panels, and in addition project $\frac{1}{4}$ in. beyond the face in a similar manner to a cocked bead. The bead covering the hollow corner may either be steamed to shape or could be worked in two pieces to butt cleanly together, to be glued and panel-pinned into position. A section of head end is seen at Fig. 3.

With regard to the fixing of the posts and cabriole legs, the posts we presume are 2 ins. by 2 ins., and it is usual to shape this thickness as shown at Fig. 4 so that it tapers towards the top and affords a neater and more pleasing finish. The parts can be screwed in addition to glueing, or a set of short dowels may be used. (146)

Polishing Rosewood

T. M. (Nelson) has just been making a side-board in rosewood and found that some of the wood supplied to him was a much paler colour than the rest. How can he colour this up to match the darker timber?

REPLY.—The South American rosewood which was so popular during the Victorian period was coarse and heavy and varied in colour from a brownish purple to almost black. It contained a great amount of resinous matter and was difficult to polish, usually sweating when the french polishing process was completed. The Indian rosewoods, of which there are several, are of larger growth and frequently of paler colour. Your best procedure would be to stain the light portions with Stephen's rosewood water stain or Johnson's dark mahogany wood dye. It is better to use a weak stain and give two applications than to use one heavy stain, and you will have to try out the result on a piece of rosewood scrap cut off one of the boards you have been using. On no account should you wipe over the work with linseed or other oil, because rosewood is natur-

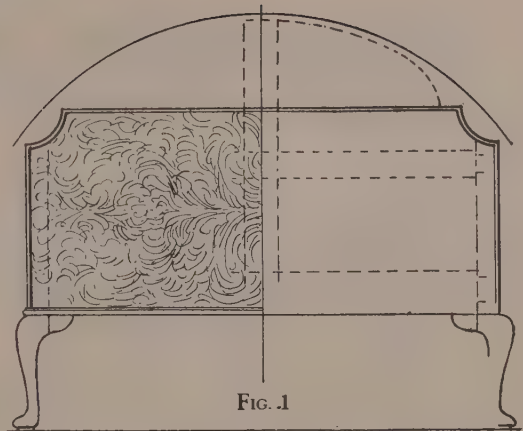


FIG. 1

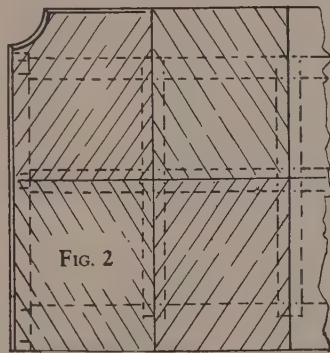


FIG. 2

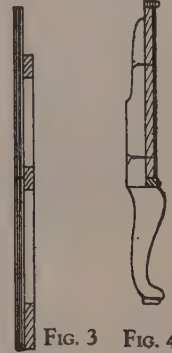


FIG. 3 FIG. 4

VENEERED PANELS OF BEDSTEAD ENDS.

ally oily. Fill in your work with any good proprietary make of dark mahogany wood filler, or make up your own as follows: take four parts dry crushed whiting to one part fine plaster of paris and one part of precipitated pumice stone powder and mix to a paste with pure turpentine. Then add vandyke brown powder and a little rose pink powder to match the colour of the wood. You may also require a little venetian red powder, but this of course will have to be left to your discretion. Immediately before using your filler add about 1 oz. (one tablespoonful) of best gold size to bind it, i.e., 1 oz. to a pound pot of filler. Let the work stand two days or more if possible after filling, and if the wood still appears coarse and open grained give a coat of brush polish (half spirits and half polish) to seal the filling. Allow this sealing coat to stand a day, then ease down with fine glasspaper and refill in the work. When bodying up for the second time you should tint the polish slightly with bismark spirit aniline so as to give tone and warmth to the wood; otherwise the orange shellac polish will make the work appear sickly. It is useless to attempt to body up and polish such open grained woods as rosewood and Andaman padouk unless the pores are thoroughly choked up with a good filler. (150)

Fire Screen and Curb

H.C. (West Bromwich) has a painting, 21 ins. wide by 22 ins. long, which he wishes to make into a fire screen, and asks for a suggestion for a curb to match.

REPLY.—It would have assisted matters if you had stated whether the painting is on cartridge or plain canvas, or whether it is on canvas stretched on a frame. In the former case the general framing may be of $\frac{3}{4}$ in. thickness, with either $\frac{1}{2}$ in. or 1 in. net thickness by 1 in. on face for the uprights or posts. In our suggested design the total height may work out to about 2 ft. 10 ins. by about 23 ins. wide. A length of 2 ft. 5 ins. would be suitable for the posts, which will be finished size, including a stub-tenon above and mortises at upper and lower ends for rails as these occur. The frieze and cornice, as seen, may finish, $2\frac{3}{4}$ ins. over all, allowing a full $\frac{1}{4}$ in. section for the capping mould and a frieze rail 2 ins. wide under, which will carry the $\frac{1}{2}$ in. frieze bead along the lower edge. This frieze rail may be tenoned each end to posts to finish flush on face with them, or if preferred a $\frac{1}{2}$ in. thickness could be used here so that the rail recesses slightly front and back of the posts. Relief for this part can be afforded by applying a panel about 5 ins. long to the centre of the frieze, upon which an applied festoon may be glued and panel-pinned.

On either side of the panel a row of $\frac{1}{2}$ in. flutes spaced about $\frac{3}{8}$ in. apart may be cut, or if desired the frieze may be inlaid with an ebony line or a $\frac{3}{8}$ in. cross-cut banding of brown oak or walnut. In the latter case the section chosen for the capping might have its main member decorated with leaf detail. All tenons should be pegged in position to secure them. The lower rail may finish 1 in. wide to include a $\frac{1}{8}$ in. bead along the bottom edge, and also the $\frac{3}{8}$ in. section mould shown as mitred round the panel opening. In the angles formed by lower rail and posts small brackets about $1\frac{1}{2}$ in. by $1\frac{1}{2}$ in. are fitted as a stiffening, in addition to which alternative hints are afforded for a bottom shaped or fret-cut rail as preferred. The rail may be cut from a piece of $2\frac{1}{2}$ in. by $\frac{3}{4}$ in. Feet will finish about 8 ins. from ground, and a detail outline is given at Fig. 2 mapped out in 1 in. squares, and including the tenon to enter posts. The thickness of material had best be $\frac{3}{4}$ in. in view of the size of screen required.

A detail of the upper part of screen is shown at Fig. 3 to enlarged scale, together with a section indicating the panel mould applied to form a rebate against which the picture and glazing will bed, the whole to be finished by a $\frac{1}{2}$ in. backing rebated and screwed to posts. If the picture to be mounted is on material that will require stretching, this should be done on a blind frame formed of stiles and rails about 3 ins. wide by $\frac{3}{8}$ in. thick, mortised and tenoned or bridle-jointed together, glued and nailed or screwed. The capping mould may be mounted in centre with a neat fret-cut scroll to form a decorative handle for lifting the screen (Fig. 1), or such a part may be of lacquered brass with good effect.



FIG. 1

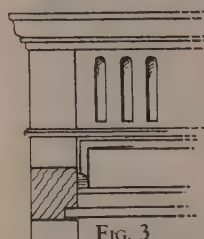


FIG. 3

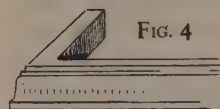


FIG. 4

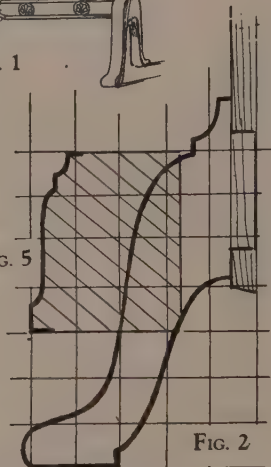


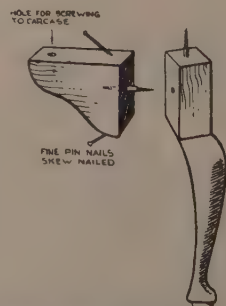
FIG. 5

FIG. 2

SUGGESTED DESIGN FOR FIRESCREEN.

A curb to match might be worked out as at Fig. 4, size for the section being 4 ins. by $3\frac{1}{2}$ ins., an enlarged section being given at Fig. 5 plotted out in squares. (148)

DOWELLING LEGS.—To an amateur the dowelling of Queen Anne and Chippendale legs presents some difficulty. I have used the following method with great success. The top of the leg is fixed to the carcass portion with a double pointed screw and the surfaces in contact are glued. To fix the wing pieces I again use the double pointed dowel screw and I glue the surfaces together, afterwards skew nailing the joint with fine $1\frac{1}{2}$ in. of $1\frac{1}{2}$ in. steel panel pins. The wing piece is further secured by screwing it through the hole indicated by the arrow with the ordinary type of screw.—ISAAC COX (Fidlers Ferry and Penketh). (106)



HINT ON THE DOWELLING OF LEGS.

THE WOODWORKER

VOLUME XXXIV.

APRIL, 1930.

NO. 437

THE EXTRA KITCHEN TABLE

COMPACT WHEN CLOSED—INDISPENSABLE WHEN OPEN

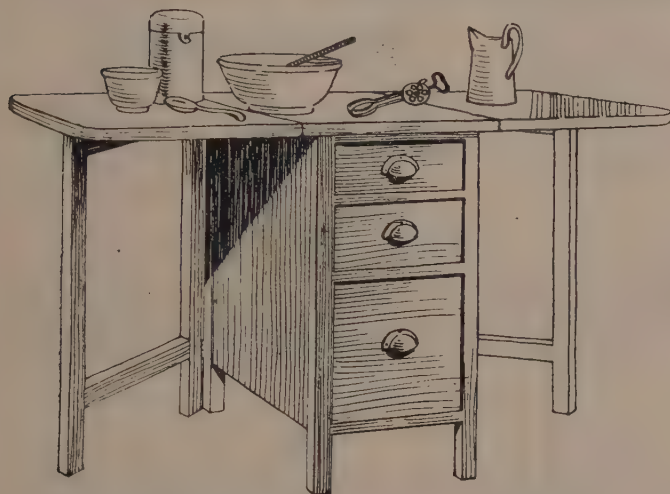


FIG. 1.—AN AUXILIARY KITCHEN TABLE WITH GATE LEGS.
SIZE OVER TOP WHEN OPEN, 4 FT. 6 IN. BY 2 FT.

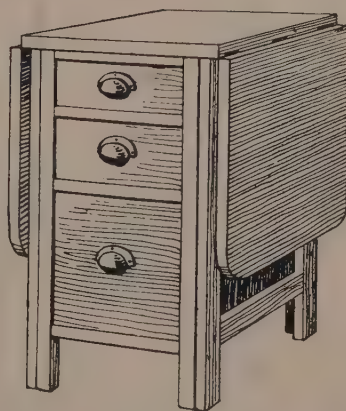


FIG. 2.—THE TABLE CLOSED. SIZE
OVER TOP, 1 FT. 6 IN. BY 2 FT.

THIS handy table is intended to be an auxiliary to the kitchen cabinet given in the March number. Designed to stand against the wall it would be equally stable in the middle of the kitchenette. When not in use, and with the flaps down, very little space is occupied, and it may be placed in any convenient corner. With the flaps extended there is ample accommodation, and the three drawers ensure many necessary things being to hand, thereby saving work. Some possible uses are indicated in Fig. 3, and these suggestions may of course be varied to suit individual requirements.

TIMBER AND FINISH.—Naturally the timber chosen would be inexpensive, as for the cabinet, and magnolia, whitewood, Oregon pine or similar cheap woods would be excellent. For tropical climates, oak or some other hardwood would be better.

For finish use Johnson's or similar wood dye—dark oak or a golden brown. Leave the top in the white, level and smoothly finished. Alternately, the under part may be enamelled white.

CONSTRUCTION.—The pedestal legs (A) are prepared from $1\frac{1}{2}$ in. squares, finishing $1\frac{3}{8}$ in. Pair them and work grooves on the inner faces to take the tongued ends. Also work a rebate in the

back legs for the back. The ends (O) will be two or three boards jointed, the joints being doweled or cross tongued. Place the ends together to ensure that both are equal in length and width. Work rebates along the inside bottom edges for the bottom (G). In working the tongues see that the ends are set in $\frac{1}{4}$ in. from the outside face of the legs (Fig. 5). Glue the legs and ends, and when set place them together to pair and mark off the position of the rails (D E) and bottom (G). Carry the lines round and mark the mortises. The length of drawer fronts and shoulder of the rails and bottom should be struck off together. Fig. 4 shows the method of stub-tenoning rails and bottom to the front legs. Before final assembly, work grooves along the rear of rails (E) for the stub-tenoned drawer runners (F). The bottom (G) will also be glued into the rebates already worked in the ends and screwed. Finally, the top rails (D) are dovetailed down and the runners (F) screwed to the ends.

The drawer sides and backs should be stout in thickness to stand considerable wear and tear, and should not be less than $\frac{1}{4}$ in. thick. Dovetailed construction would be the strongest method, the plywood bottoms being grooved into the fronts and sides. If the bottom drawer is intended to

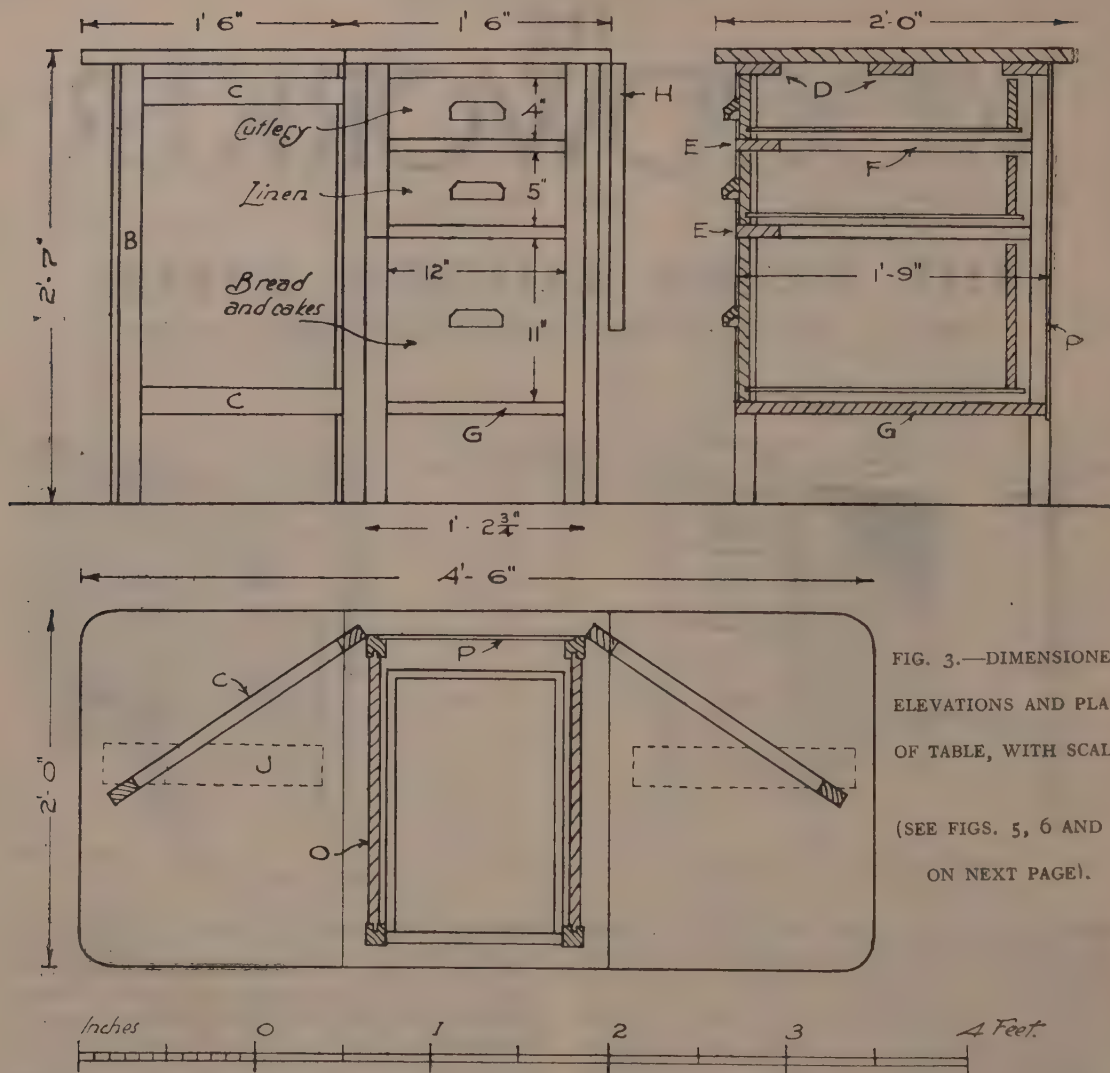


FIG. 3.—DIMENSIONED
ELEVATIONS AND PLAN
OF TABLE, WITH SCALE
(SEE FIGS. 5, 6 AND 7
ON NEXT PAGE).

take bread, get the local tinsmith to make a metal lining to drop in loose, and work grooves in the sides about $\frac{1}{2}$ in. down from the top edge for a metal sliding cover (Fig. 7). After fitting the drawers, nail or screw in the plywood back (P). The gate legs (B C) are simple to make, being mortised and tenoned together. Keep the upper rails (C) down about 1 in. (Fig. 2). The grain of the tops (H) should run from front to back. The tops are hinged together with three $2\frac{1}{2}$ in. brass butts to each joint. Slot-screw battens (J) to the underside of each flap, notching out at one end to form a stop for the gates (Fig. 6). Well round all corners and remove all sharp edges. Fix the top by screwing up through the top rails (P). Metal or wood handles may be used, alternative types being shown in the drawings.

(Cutting List on next page).

HORNBEAM is one of the hardest of British woods and may rank next to box. The tree is said to be a native, growing fairly large in the southern and midland counties, and thriving well in the north-east outskirts of London, especially at Epping. It has a twisty, irregular bark and the leaves are serrated into sawlike edges. It is also common to central Europe and west Asia. The wood is a pale yellow in colour, varying to greyish white, close grained, heavy, hard and strong, difficult to split and very durable. The wood shrinks very much in seasoning, and is the most inflammable of any native timber. It is generally used for pulleys, cogs, wood screws, tool handles and turnery. The name is derived from the "horny" character of the wood, and its use as a "beam" or "yoke" when bullocks were trained for ploughing.

CUTTING LIST:—

		Long. ft. ins.	Wide. ins.	Thick. ins.
A	4 Legs	2 6½	1½	1½
B	4 Gate legs	2 6½	2	¾
C	4 Gate rails	1 8	2	¾
D	3 Top rails	1 2½	3	¾
E	2 Drawer rails	1 1½	3	¾
F	4 Drawer runners	1 6	2	¾
G	1 Bottom	1 2	20½	¾
H	3 Tops	2 0	18	¾
J	2 Battens	1 3	2½	¾
K	1 Drawer front	1 0	4½	¾
L	1 Ditto	1 0	5½	¾
M	1 Ditto	1 0	11½	¾
N	1 For 2 kickers	1 0	1	¾
	6 Guides	1 0	1	¾
O	2 Ends	1 11½	10	¾
	2 Drawer sides	1 6	4½	¾
	2 Ditto	1 6	5½	¾
	2 Ditto	1 6	11½	¾
	1 Drawer back	1 0	3	¾
	1 Ditto	1 0	4	¾
	1 Ditto	1 0	10	¾
	3 Drawer bottoms	0 11½	18½	¾
P	1 Pedestal back	1 11½	13½	¾

NOTE.—All sizes given are net; ¼ in. allowed on drawer fronts and sides for fitting. (202)

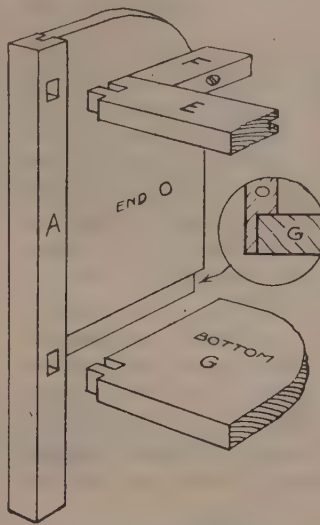


FIG. 4.—SHOWING METHOD OF CONSTRUCTION.

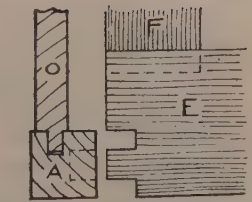


FIG. 5.—PLAN OF LEG.

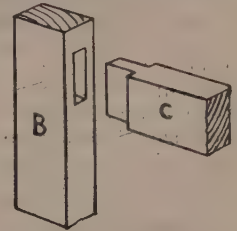
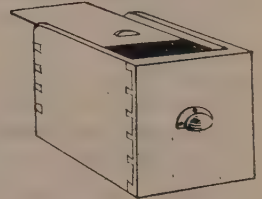


FIG. 6.—GATE JOINT.

FIG. 7.—SKETCH OF TOP LINED DRAWER WITH METAL SLIDING COVER.



The Cedar

THE TRUE CEDAR is the ancient and Biblical cedar of Lebanon, whose dark foliage and giant limbs, together with its old associations, make it one of the most valuable and highly-prized of ornamental trees. The best one at Kew is 70 ft. high and over 14 ft. in girth, with long and massive branches growing at almost right angles to the stem. The cones are oval or barrel-shaped, and grow upright from the branch. The wood of this tree is not the cedar of commerce, and it seldom comes into the market. In colour it is white with a reddish tint, light and spongy, brittle and porous, subject to heart and cup shakes, and owing to its strong but pleasant odour is proof against attack from insects. It was of this cedar that Solomon built his temple, and it is said that their limit of age is from 300 to 400 years.

The name of cedar is given to other species, such as juniper, thuya and cedrela, but the two important cedars of commerce are the red or pencil cedar of North America, and the West Indian cedar. The last-named is like mahogany, with a purplish tint and blackish streaks along the grain. The wood is light, soft, easily split, and fragrant. It was used largely for the interior of cabinets, chests of drawers, etc., but its chief use now is in the making of cigar boxes. It is also known as Cuba, Honduras, and Mexican cedar.

The American wood is firmer, and is brown or chestnut red in colour, with a yellow sap. It is soft and brittle, easily split, but fairly durable in damp situations; has a strong and pleasant odour,

which is fatal to moth and other insects. Its principal use is in the manufacture of pencils.

Other cedars are Bermuda cedar, closely allied to the American junipers, and the Indian or Himalayan cedar, which is hard and strong compared with the above-named. Cedars also come from New Zealand, Cape Colony, and Australia, and many fragrant woods known as bastard cedars have been introduced to the trade in recent years. The juniper in England is not much more than a large shrub, with berries similar to those of the yew, but the Indian and Himalayan cedars are ornamental trees.

BEDROOM FURNITURE DESIGNS.—*New and Revised edition.* This is an entirely new volume of designs, complimentary to "Modern Bedroom Suite Designs" published a few months ago. The new issue includes one complete modern suite in oak (bedstead, wardrobe, dressing chest and tallboy); otherwise the volume is devoted to attractive and useful single pieces which, from time to time, the average home furniture maker is anxious to make. These comprise Queen Anne and other bedsteads, fitted and other wardrobes, dressing chest with wing mirrors, various types of chests of drawers, bachelor's cabinets and chests, child's cot with drop side, adjustable lounge chair bed, bedside reading table, tallboy wardrobe, etc. Crown 4to., 48 pages, price 2/6 net. Evans Bros., Ltd., Montague House, Russell Square, London, W.C.1.

CHIPS FROM THE CHISEL

COLOUR IN FURNISHING

NOW that the hubbub of the Italian Exhibition is over, it will be interesting to see how many of the many thousands who attended it find their way to the National Gallery, which is always, by contrast, practically deserted. For if there is one thing the Exhibition taught it was the absolute choiceness of our own national collection of Italian pictures. We can return to such masterpieces at the National Gallery as Piero della Francesca's "Nativity" and "Baptism," Piero di Cosimo's fairylike "Death of Procris," Uccello's battle-piece, Titian's magnificent "Bacchus and Ariadne," with much keener appreciation of their superlative greatness because of the chances of comparison we have had. What we lack there is the great range of painters which Burlington House made accessible, and we were particularly fortunate at the Exhibition in the opportunity of seeing pictures by an artist like Giorgione, whose work has now become extremely rare.

Giorgione's gorgeous colouring is a revelation of what depths of poetry and romance there can be in fused colour harmonies. This is the painter who gave the inspiration to the whole of that great Venetian group of artists who revelled in colour, of whom Titian and Paolo Veronese were each in their different way such notable examples: indeed all painters since who have been great colourists have worked directly or indirectly under his influence. What struck me most in looking at these pictures was how utterly restful to the eyes and the mind these gorgeous pieces of colour were, and I wondered if we could not make much more extensive use of colour in our home decorations with an equally restful effect.

I am aware that of recent years a great deal of colour has been introduced into furnishing schemes, even into furniture, sometimes effectively, sometimes not. But the tendency has been to introduce bright, dramatic notes of colour against neutral backgrounds. Lemon yellow, orange, black, blue, rose red in curtains, cushions, carpets, wallpapers, have all been very much with us, not to mention the cretonne craze when great flowers like unwieldy cabalistic monsters crawled over everything. But it never struck me as being particularly restful; not, at least, the kind of thing I should care to live with for very long. The colours were too bright and hard against the neutral tints upon which they were thrown, and although at first sight the impression may be quite pleasing, such a scheme is tiresome and tiring to live with and shows itself as something rather posed and artificial.

It is quite possible to use positive colours side by side with the best possible result, as we can learn from the Venetians. It is almost startling to see how many glowing colours in considerable masses we find in any one picture by Giorgione

or Titian: deep red, vivid crimson, orange, golden brown, green, blue, so placed and proportioned that there is not one shrill, unquiet note anywhere. Supposing we have a dining room or sitting room which gets little or no sun; such a room is apt to look chilly and uninviting and we feel that warmth in colour is desirable. By using a combination of reds, which can rise from maroon to a vivid crimson note, the first, say, in the carpet, the latter in various coverings, such, for instance, as rugs, lampshade, etc.; and tawny orange in, say, curtains and cushions, we can achieve an effect of warmth that is perfectly quiet and easeful. But to push the warmth aim too far would make the room look hot and overpowering, so for the walls is needed some scheme of colouring that is not too heavy and in which some counter-balancing colour, such as green or blue, can mildly predominate. This cool colouring should also be carried through into some of the ornaments of the room.

In mentioning walls a word should be said as to the possibility of a patterned rather than a plain paper in many good colour schemes. For the difficulty of plain paper is that, if a positive colour is used, by the time we have it splashed over the four walls of our room we have generally got a great deal too much of it, and it becomes oppressive. Our only alternative to that is the rather pallid, neutral tones, which are apt to throw up too strongly any bright colour that is used against them. Where plain papers can be used very effectively is in rooms where not warmth but light is required, or for gentler, softer effects in which colours like grey, lavender, rose-pink, blue and green are combined to provide a general atmosphere of silvery quiet. But where strong, rich colours are in use, the patterned paper allows for the introduction of a colour or colours in moderate proportions which will harmonise with the rest and yet serve as some necessary contrast, as in the green or blue mentioned in our scheme for the sunless room, for the colour is broken up by the necessities of the pattern and need never be overpowering.

In a good many quarters, especially in the suburbs, plain papers have become a sort of fetish, and people do not feel "safe" with anything else. It is a reaction against some of the glaring crudities that are possible in a patterned paper, and were especially notorious a generation ago. But to-day it is possible to obtain some really beautiful patterned wallpapers if anyone will take the trouble to search determinedly for what he wants, and we shall prove our artistic worth more satisfactorily by making use of what happens to be the most suited to our purpose than by timidly keeping to what we are sure is safe. Art at its best is entirely human and lovable in its beauty, and if the result of our efforts in decoration strikes that note, we may be sure that we have been successful in the right way. (214)

THE EVER-USEFUL DINING TABLE

DRAW EXTENDING TO 5 FEET BY 3 FEET

THE dining table illustrated in Fig. 1 is the first article of a new living room suite for those readers who desire to furnish the living room of a small house or flat. This table, with the sideboard, secretaire and chairs, has been specially designed to meet the requirements of a small living room, and every article has been carefully considered both from the standpoint of proportion and convenience.

LEGS AND RAILS.—Select the legs (A) and rails (D) from good, straight-grained quartered oak, plane and finish to the sizes given in the cutting list and gauge for mortising together. Tenons to a length of $1\frac{1}{2}$ in. are allowed on the rails, corresponding mortises being cut in the legs to a similar depth. It is well to mention that, as it is desired to set back the faces of the rails $\frac{1}{2}$ in. behind the faces of the legs, allowance must be made for these breaks when gauging the legs for mortising.

The only decoration afforded on the legs consists of shaping all four faces of each leg at the bottom, and cutting 3 reeds on each face. The shapes might first be cut carefully with a bow-saw and finished with a scraper or file and glasspaper. The 3 parallel reeds, each $\frac{1}{8}$ in. wide, should first be scribed with a knife cut on the shaped face, and then worked to the desired shape with a suitable gouge.

A mortise on the inside corner of each leg will be needed for the cross stretchers (C). Select mild stuff for the stretchers and work to a square section, size $1\frac{1}{2}$ in. by $1\frac{1}{2}$ in. Cut a tenon at both ends to fit the corresponding mortises in the legs, as in Fig. 5. The stretchers are just halved over each other at their meeting place in the centre. Cut two slots in each end of rail (D) for the sliders (K). The skeleton frame, comprising A, C and D, might now be glued and cramped together. The finished sizes across the legs should be 2 ft. 6 ins. square, the top frames overhanging 3 in. all round to make the table 3 ft. square when closed. The skeleton frame is given in Fig. 3.

TOP FRAMES.—The finished size of the top frame E, F and L is 36 ins. by 36 ins., and the size of the leaves 36 ins. by 12 ins., these latter dimensions being also the size of the fixed frame (H and I). The seven pieces comprising the cross rails (E) should be finished to a neat size of 3 in. by 1 in. and grooved on their respective edges for the tongues of the panels (L and M).

Work a bead also on the top edges to break the joint of the panels and rails.

Groove the rails (F and G), also finished 3 in. by 1 in., and work a similar bead; but notice that the grooves must be stopped in about $\frac{1}{2}$ in. from each end, and the beads about 3 in. from each end. Tenons are allowed to a length of $1\frac{1}{2}$ in. on the cross rails (E) and corresponding mortises must be cut into the rails (F and G) to a similar depth. Fig. 4 is explanatory with the aforementioned construction. In the extended view of Fig. 2, a scale plan of the top frame and leaves is given, showing also the beads worked on the respective frames. Finish off these beads at the

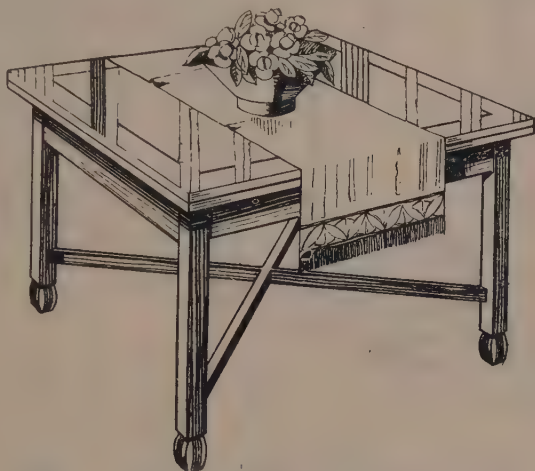


FIG. 1.—DRAW-EXTENSION DINING TABLE. 3 FEET SQUARE, OPENING TO 5 FEET BY 3 FEET.

corners with a mason's mitre cut, after the frames are completed. Good, bone-dry stuff will be needed for the panels (L and M). Work a tongue all round each of the panel edges to a width of $\frac{1}{2}$ in., to fit the grooves already worked in the rails (E, F and G). Frame in these panels when gluing and cramping up the rails. It is strongly emphasised, however, that the panels be left dry in their respective grooves to allow for any movement or shrinkage.

The fixed frame (shown in dotted lines in Fig. 2) comprises

rails H and I. No panel is needed in this frame, and consequently no grooves in the rails. Cut tenons $1\frac{1}{2}$ in. long on the rails (I) and also mortises in the wider rails (H) to correspond. This fixed frame can now be glued and cramped together, and when dry screwed down to the rails (D). Sink a $\frac{3}{4}$ in. dowel in the underside of each of the top frame rails (F) to a depth of about $\frac{1}{2}$ in. Cut a hole right through in each of the wider rails (H) to receive these dowels. The fixed frame never moves, but the top frame (E, F and L) has to be left loose to lift up and off. Fig. 2 shows the position of these dowels, whilst Fig. 3 gives a clearer view.

SLIDERS AND BEARERS.—All that now remains to be completed are the sliders (K) and their different bearers (B and J). After screwing down the fixed frame, secure the bearers (J) firmly to them to the position given in Fig. 2 and also shown in Fig. 3.

Shape the sliders to the required rake (Fig. 2), keeping in mind that the shape starts from the edge of the leaf or flap. Shape also the ends as in Figs. 2 and 6. Now well screw these sliders to the underside of the leaves, keeping the outside point on the shape of the sliders on the inside

DRAW-EXTENSION DINING TABLE

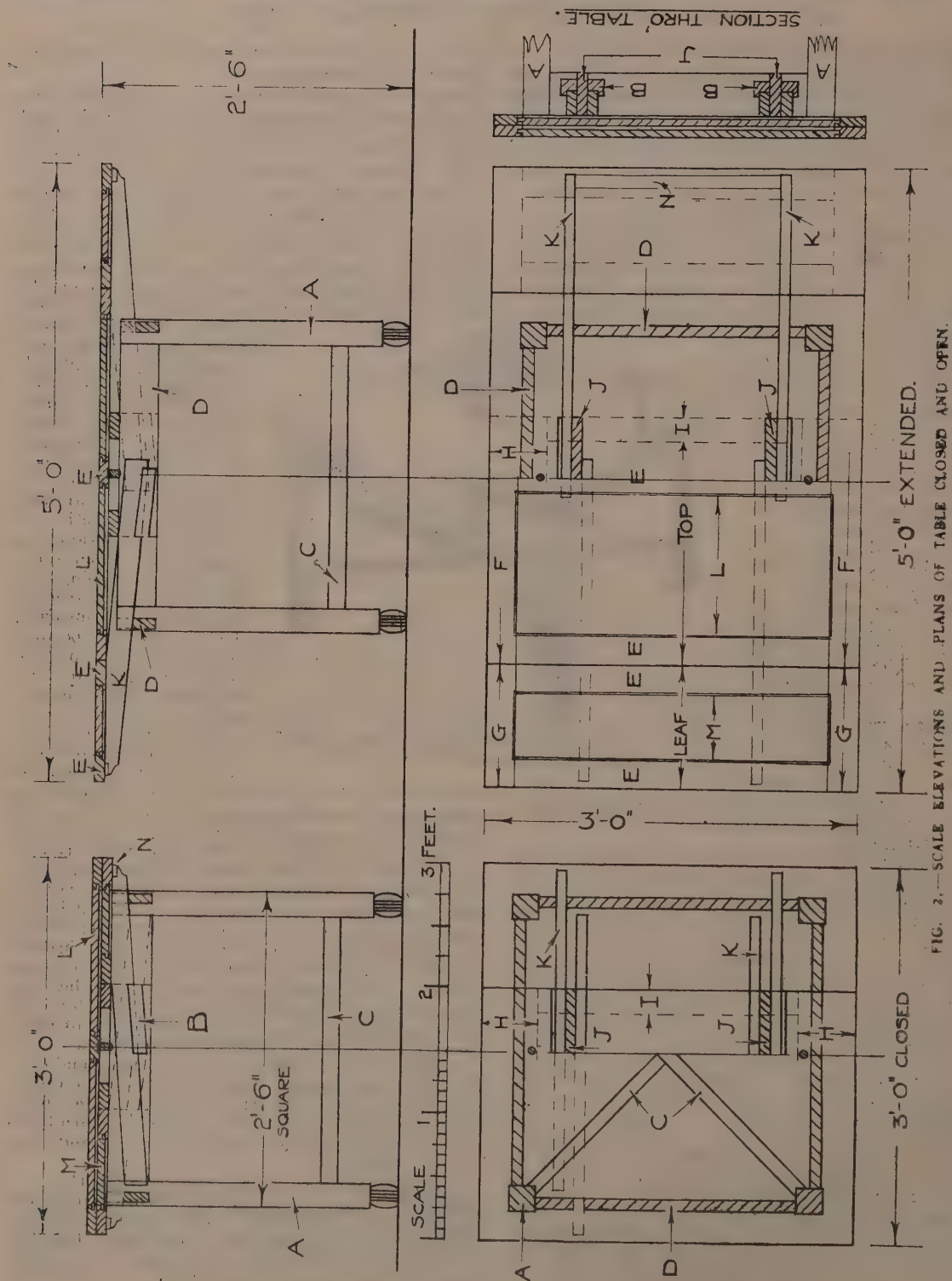


FIG. 3.—DETAIL OF CONSTRUCTION.

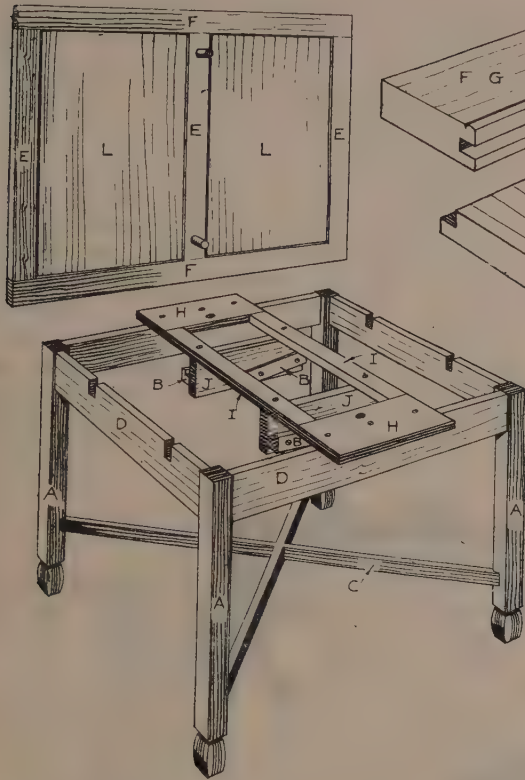


FIG. 3.—DETAIL OF CONSTRUCTION.

FIG. 4.—DETAIL OF TOP FRAMES.

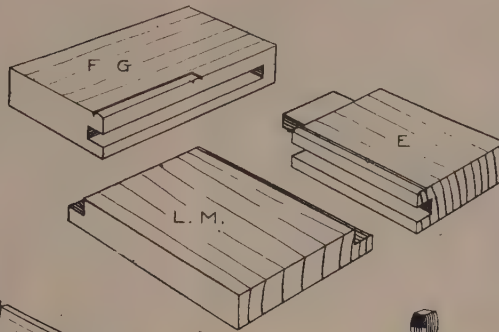


FIG. 5.—STRETCHER JOINT.

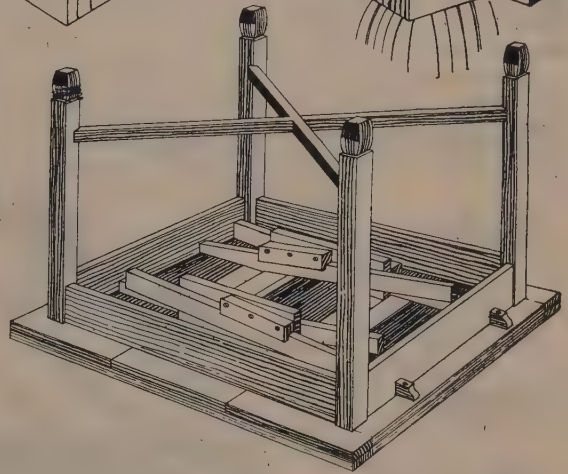
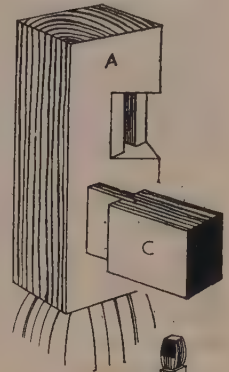


FIG. 6.—INVERTED VIEW OF COMPLETE TABLE.

edge of the leaves.

Slip the slides (K) into the grooves cut in rails (D), and slide into the closed position. Work the slide runners (B) to the section given in Fig. 7 and slip one over each slide each side of the bearers (J) and secure by well screwing through. Fig. 3 makes plain this procedure whilst Fig 6 shows the inverted view. The flaps should now easily slide in and out, but, to prevent their pulling right out when in common use, sink a small dowel in each of the slides to stop against the end rails.

A useful and perhaps an economical hint might be given in regard to the cutting of the slots in the end rails for the sliders, this being that the 2 slots on one end rail must of necessity be 4 in. narrower over all than those on the opposite rail.

GLUE AND PIN THE FILLETS (O) to the underside of the panels (M) over the legs, to prevent any downward movement of the flaps when closed. Finally, to complete, screw the finger pulls to the underside of the cross rails (E), as in plan and elevation at Fig. 2.

FINISHING.—Fit domes of silence on the legs, then clean down the whole job with fine glass-paper for polishing.

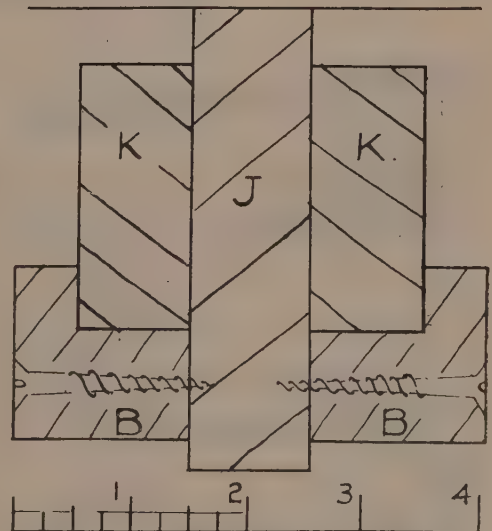


FIG. 7.—ENLARGED SECTION THROUGH SLIDES.

(Cutting List, etc., on page 125).

COLLAPSIBLE GARDEN FRAME

THIS garden frame (Fig. 1) should especially interest the amateur gardener, because it is so made that it may be taken apart when not required and packed into a very small space. A frame of this kind is very suitable for a man with a small garden as it may be taken to pieces in a few minutes if the ground on which it stands is required for another purpose. Good red deal of 1 in. thickness, preferably in boards 6 in. wide, should be used for the sides, back and front.

THE SIDES (Fig. 2) are formed with two 6 in. boards, 4 ft. 4 in. long, and if another board is cut diagonally it will form the sloping top for both sides. The boards are held together with two 3 in. battens nailed across the ends on the inside, and a guide piece, 4 ft. 4 in. long by 2½ in. wide, is nailed on the outside to project 1½ in. above the top edge.

THE BACK (Fig. 3) is formed with three boards, two being 3 ft. 6 in. long, and one 2 ft. 10 in. long. Tenons are cut at the ends of the top and bottom boards, and two 2 in. battens are nailed

across the ends.

THE FRONT (Fig. 4) is formed with two boards 3 ft. 6 in. long; tenons are cut at the ends, and two battens are nailed across. Mortises must be cut in the sides to receive the tenons on the front and back for the parts to be fitted together, and wood pins arranged for fixing, as at Fig. 5.

THE GLAZED LIGHT (Figs. 6, 7 and 8) is made with two stiles, top and bottom rails and two bars. The stiles (A) are 3 in. wide by 1½ in. thick; top rail (B) 4 in. wide by 1½ in. thick; bottom rail (C) 4 in. wide by 1 in. thick, and the bars (D) 1½ in. square. The stiles, top rail and bars are rebated ½ in. square at the top and chamfered ½ in. at the bottom, while the framing is carried out with mortise and tenon joints, the rails being tenoned into the stiles and the bars tenoned into the top rail and lapped over the bottom rail. All the joints are mitred in the width of the rebates and chamfers and the front rail is kept level at the bottom. Give the woodwork two or three coats of paint. (207)

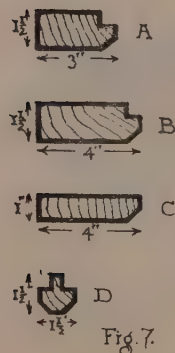


Fig. 7.

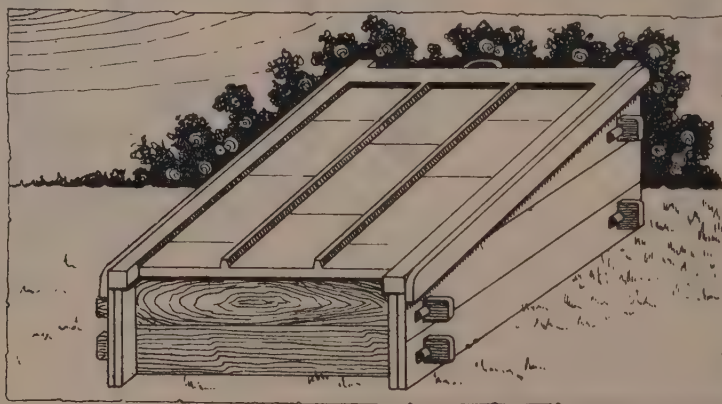


Fig. 1.



Fig. 8.

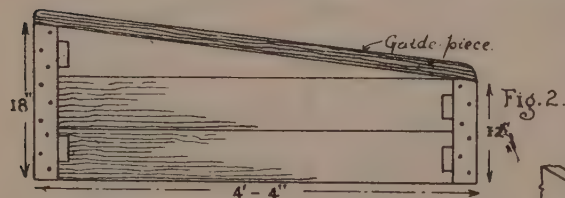


Fig. 2.

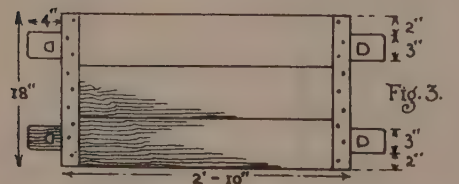


Fig. 3.

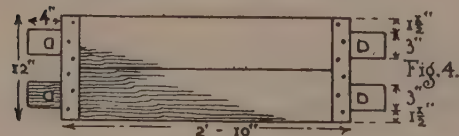


Fig. 4.

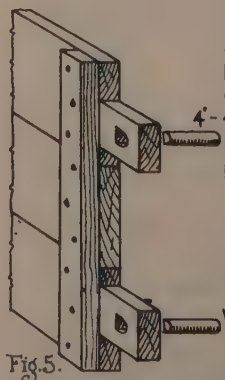


Fig. 5.

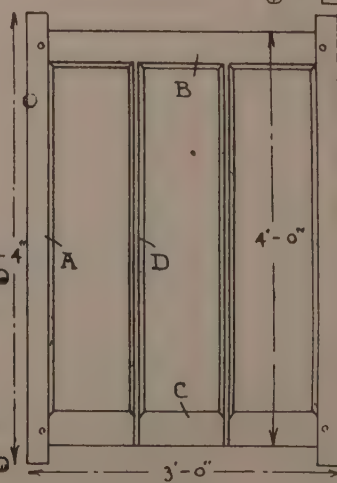


Fig. 6.

FOLDING STEP LADDER

THIS folding step ladder would be of the greatest use to the handyman in both house and garden. It is shown in use as a 6 ft. pair of steps at Fig. 1, and extended to form a 12 ft. ladder at Fig. 2. As a pair of steps it is very handy in the house when cleaning, redecorating, or similar jobs are being undertaken, while as a ladder it is most useful outside the house for pruning fruit trees, cleaning windows, painting and other work.

THE TWO SECTIONS, which could be made from good sound deal, are shown at Figs. 3 and 4. The four slides should be 5 ft. 10½ in. long by 2 in. wide by 1½ in. thick, and the twelve bars 1 ft. 4 in. long by 1½ in. wide by 1 in. thick. The bars are tenoned into the sides to the dimensions shown, and the ends of the tenons are wedged.

A pair of heavy strap hinges are used to hinge the two sections together. They should first be fixed with a few screws, and arranged so that, when the ladder is opened and the two sections are in a straight line, the butting ends of the sides close tightly together.

TWO WOOD STAYS, 2 ft. long by 1½ in. wide by 1½ in. thick, are prepared and fixed to the top ends of the bottom section, two ½ in. bolts which pass through the hinges, sides and stay being used to fix each. When the ladder is in use these stays hold the two sections in a straight line, and the upper section is made secure with bolts and wing-nuts which pass through the hinges, sides and stays, as at Figs. 5 and 6.

TWO CHAINS should be arranged between the sides of the two sections (see Fig. 1) to hold the steps when in use, the chains being fixed at one end with bolts or staples and fitted at the other with crooks and eyes. When complete the step ladder should be painted or varnished. (206)

"HOW TO QUALIFY AS A HANDICRAFT INSTRUCTOR." Send threepence for this useful little pamphlet. Evans Bros. Ltd., Montague House, Russell Square, London, W.C.1.

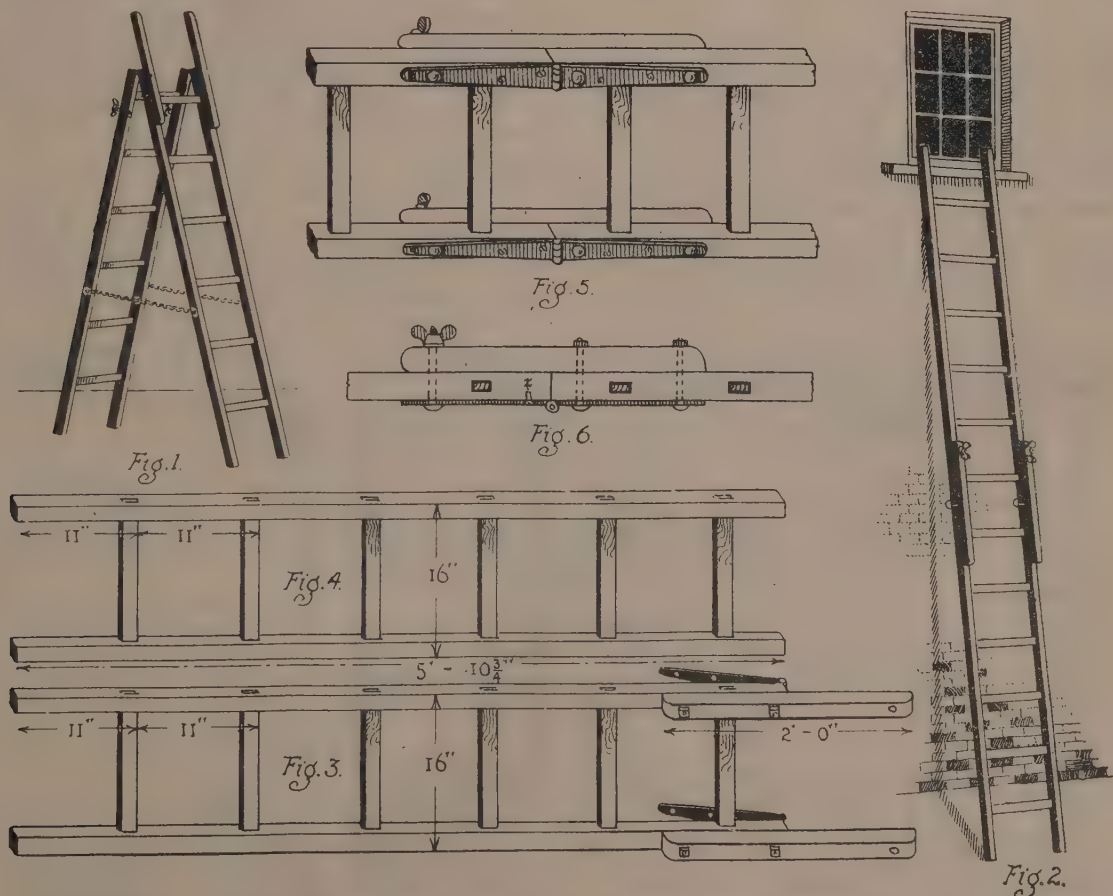


FIG. 1.—SKETCH OF 6 FT. FOLDING STEP LADDER. FIG. 2.—THE LADDER EXTENDED TO 12 FT. FIGS. 3 AND 4.—THE TWO SECTIONS. FIGS. 5 AND 6.—HINGING AND BOLTING.

LIGHT MEDICINE CABINET

A HANDICRAFT CENTRE STUDY

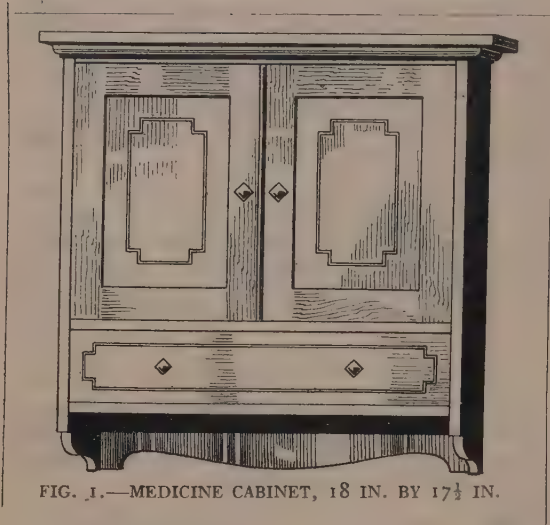


FIG. 1.—MEDICINE CABINET, 18 IN. BY 17 1/2 IN.

THE accompanying drawings illustrate a small medicine cabinet of the hanging type. This is a model which is very popular with boys in a Senior School, and is one which affords ample scope for decoration. The material used could be either oak, mahogany or walnut.

First a correct scale drawing of the job should be made. All the materials should then be planed up carefully to the required sizes and the face sides and edges plainly marked. The sides (A) should now be fastened together so that their face sides and face edges come together, the

process being called "pairing." Mark their length and the position of the shelves (B).

The trenches to receive these shelves should be made very slightly less than the thickness of the shelves. Gauge the depth of the trenches, and also gauge the amount of stopping required. Cut out these stopped trenches by commencing as shown in Fig. 4, and then sawing to the required depth. Chisel the waste out, set up a router and clean up the trenches to the required depth.

The sides (A) may now be cut to length, and the shaping of their bottom ends carried out. All this should be done whilst the pieces are fastened together. The shaping is done with a bow saw, and the cleaning up with spokeshave, file and glasspaper.

Cut the rebates for the back piece with a cutting gauge, taking out sufficient wood to take its thickness. Place the two shelves (B) together and mark out their length, allowing for the stopped housing joints as in Fig. 5. These pieces should be cut to length whilst fastened together.

The top piece (C) is next marked out, the trenches cut to take the sides and a rebate made for the plywood back. Cut C to length, and plane the ends up carefully on a shooting board. Fit and number all joints. The work is then cleaned up thoroughly and preparations made for gluing up.

GLUEING UP. Have ready to hand hot glue, 1 in oval nails, hammer and rag for wiping off excess of glue. Use glue sparingly in the trenches and coat the ends of the shelves. Place these in position and nail up carefully. Glue and fasten the top in its place, then square up

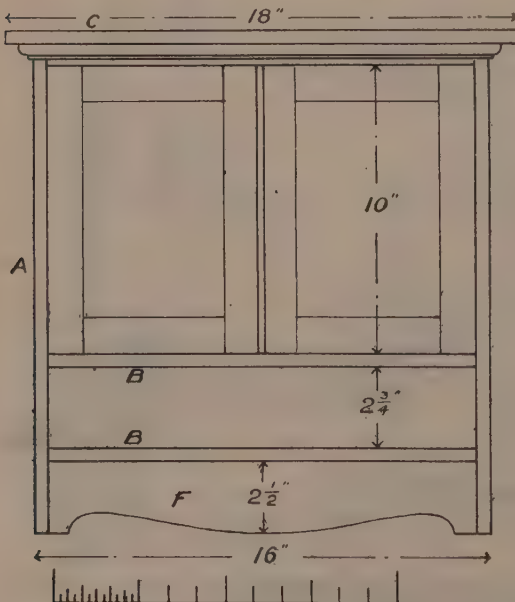


FIG. 2.—FRONT ELEVATION, WITH SCALE.

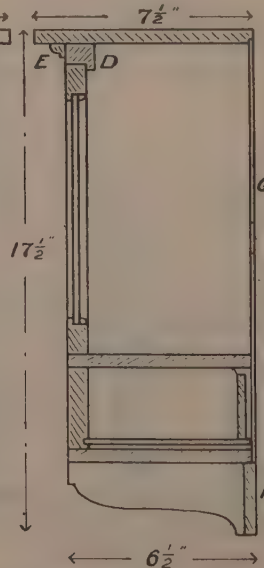


FIG. 3.—END SECTION.

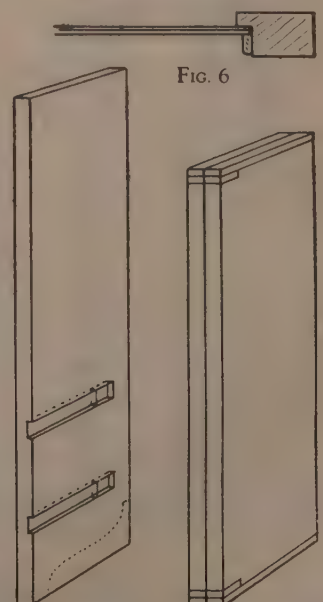


FIG. 4.—END. FIG. 5.—SHELVES.

the job. Fit the plywood back and fit in position with panel pins. The piece (D) is rebated to the sizes given, cut to length, cleaned up, and glued into its position. The bottom apron piece (F) may now be shaped, cleaned up, and fixed into its place.

DOORS. First prepare a rod, i.e., a thin board of deal on which is drawn (full size) horizontal and vertical sections of the doors as shown in Fig. 7. Plane up all the wood for the doors carefully to the given sizes. Mark out one stile from the rod, then place the four stiles together in pairs, i.e., face side and face edges together. Cramp up, and set out all stiles from the one already marked. Set up a mortise gauge to a $\frac{1}{2}$ in. chisel and gauge mortises. The rails should be dealt with in a similar manner and the tenons gauged carefully.

Now cut all mortises two-thirds the way through the wood, remembering to hold the chisel vertically. Tenon the rails, but do not cut the shoulders until all the rebating has been done, otherwise there will be no guide left to start the rebate plane. Cut all the rebates, then shoulder the rails. Now fit each rail into its position, cramp each door up and test for twist. If the door frames are true they may be glued up, squared and cramped, and allowed to set.

The plywood panels should now be cut to size and any decoration desired carried out. Two suggestions for simple inlay treatment are given at Fig. 8. When the doors are set they should be cleaned off thoroughly, fitted into position and hung. The panels are held in position by $\frac{1}{8}$ in. beads as in Fig. 6.

Make the drawer next. This should be carried out as described in the February article. When glued up and the glue has set, fit the drawer carefully and clean off thoroughly.

The moulding (E) may be either bought ready made or stuck if a suitable plane is available. It is mitred and then fixed into position. A

stock pattern of embossed mould may be used if desired. All fittings such as lock, drawer furnishings and hanging plates are now fixed. These are afterwards removed whilst the job is receiving its final clean up.

If made of oak the work may be left plain, or stained and wax-polished. Should either mahogany or walnut be used the best result would be obtained by french polishing.

THE CUTTING LIST is as follows:—

		Long. ft. ins.	Wide. ins.	Thick. ins.
A	Two ends	1 5 $\frac{1}{2}$	6 $\frac{1}{2}$	$\frac{1}{2}$
B	Two shelves	1 3 $\frac{1}{2}$	6 $\frac{1}{2}$	$\frac{1}{2}$
C	Top	1 6	7 $\frac{1}{2}$	$\frac{1}{2}$
D	Top rail	1 3 $\frac{1}{2}$	1	1
E	Moulding	3 0	$\frac{1}{2}$	$\frac{1}{2}$
F	Apron piece	1 3 $\frac{1}{2}$	2 $\frac{1}{2}$	$\frac{1}{2}$
G	Back	1 3	16	ply
	Four door stiles	10	1 $\frac{1}{2}$	$\frac{1}{2}$
	Four door rails	7 $\frac{1}{2}$	1 $\frac{1}{2}$	$\frac{1}{2}$
	Two panels	8 $\frac{1}{2}$	6	ply
	Drawer front	1 3	2 $\frac{1}{2}$	$\frac{1}{2}$

Drawer sides and back, $\frac{3}{8}$ in.; bottom of plywood. In getting out the sizes allow for cutting and paring. (197)

FOR THE MAY and early summer number, we have ready designs for a child's pedal motor, a handsome 4 ft. wardrobe, low in height (5ft. 6 in.), a light kitchen cabinet with drop shelf, a table revolving bookcase, a lych gate, etc. The articles on Home Carpentry, with detailed instructions on tool operations, will be continued, and several other important features are in preparation.

Please remember that, during the spring months, there is invariably an increased demand for copies of THE WOODWORKER and that the only way to make certain of regular delivery is to place an order with the local newsagent. See that your May number is definitely on order.

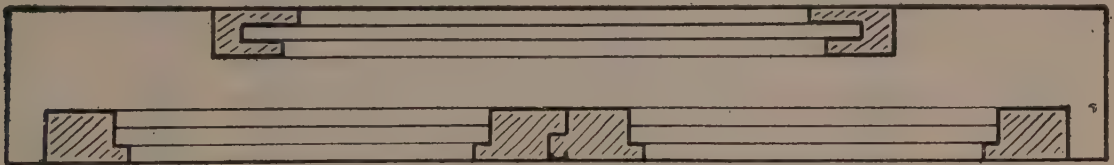


FIG. 7.—ROD, WITH VERTICAL AND HORIZONTAL SECTIONS OF DOORS.

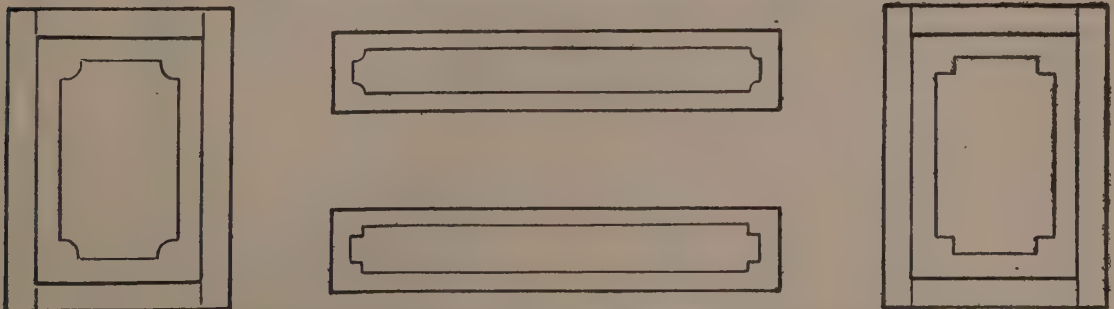


FIG. 8.—ALTERNATIVE SUGGESTIONS FOR INLAY TREATMENT ON DOORS AND DRAWER FRONT.

WHAT IS KNOWN ABOUT SHELLAC

SOME confusion appears to exist in the minds of many with regard to shellac. Some beginners have an idea that bleached or white shellac is quite a different substance from the orange or brown shellac, and they are under the impression that better and more lasting results can be obtained with the white shellac.

The raw material is a resinous substance which is obtained from the branches of several Indian trees, caused by the enterprise of a tiny bug which punctures the bark so that it can deposit its eggs. Many of the trees are infested by this bug (which rejoices in the name of *Coccus lacca*) in exactly a similar manner to a blight which attacks our fruit trees. The bug feeds on the sap of the trees, etc., and secretes in its body the crude shellac of commerce.

This raw shellac is collected by the natives and is washed, melted and sieved so as to remove the twigs, dirt and remains of the dead insects. At the same time much of the darker coloured lac dye is of course removed.

The lac dye was originally known as crimson-lac (the forerunner of crimson lake shade) and was used by the natives for dyeing their garments. To-day, however, the collecting of the shellac gum provides work for thousands of the inhabitants. After going through the several stages of manipulation it eventually comes into the hands of the french polisher in the form of thin scales or buttons, and the varieties range from a pale orange or straw colour to a brownish tinge. If this orange or brown shellac be dissolved in methylated spirit and the resultant solution be applied to white woods (such as holly, white deal, sycamore, birch, beech or satinwood) the whiteness of the wood is marred or impaired because it is lightly stained by the orange coloured solution. To overcome this difficulty the technical chemist takes the shellac in hand, and a white or bleached shellac is used by the polisher.

THIS BLEACHED SHELLAC is manufactured by boiling the orange or brown shellac in a solution of carbonate of potash. In due course chlorine gas is passed into the solution, and by this means the shellac is precipitated from the solution in a bleached form.

The bleached shellac is then washed and kneaded several times in hot water so as to remove the chemicals used in the bleaching process. It is then made into a cake and afterwards, whilst still warm and plastic, it is pulled up like toffee into sticks or hanks. This pulling treatment imparts the fibrous silky structure which is a feature of bleached or white shellac. Orange shellac is more or less a natural product; white shellac is the same substance chemically bleached.

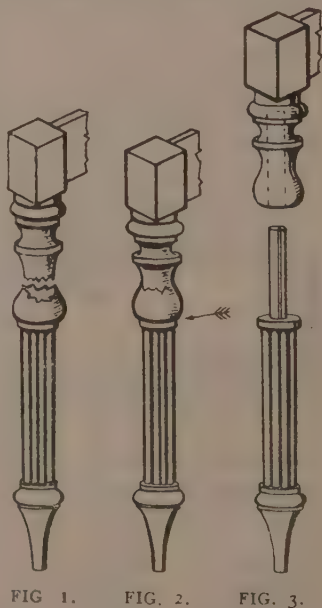
Some imagine that the object of a white or transparent polish is to prevent white woods from becoming stained or darkened, as would be the case if an orange polish was used, and a correspondent asks if it is an advantage to use white polish for all purposes and discard the brown polish entirely. Would he obtain greater transparency by tinting a white polish with suitable

spirit dyes?

We are of opinion that it is quite unnecessary to use a tinted polish made from white shellac during the bodying-in processes. In the first place, a pale natural shellac is one of the hardest gums known and there can be little doubt that the bleaching process is somewhat apt to denature the shellac. Secondly, the bleached shellac of good quality is slightly dearer than the orange shellac. Thirdly, to tint a white polish with aniline dyes which are more or less fugitive cannot be so satisfactory as to use a naturally dyed article such as an orange shellac.

If however an orange shellac has been made pale by the manufacturers using orpiment so as to lighten the colour of a low grade shellac (and this does occur occasionally), then by all means use a bleached shellac solution and tint it. Good results can be obtained by using a tinted polish made from orange shellac in all the early stages, but it is wise policy to use a rubber of white shellac prior to finishing off. On the other hand, if too heavy a film of white polish be used on the top of, say, a mahogany red, it is apt to give the finish a sickly appearance. (210)

TURNING REPAIRS.—There are some broken turnings which it is not practicable to replace, e.g., chairs with upholstered seats, old tables or chairs of rare woods, music stools with top rails fitted, etc.; but these need not, however, be relegated to the lumber room. To centre up for the dowelling on a broken leg as at Fig. 1 is practically impossible. I overcame the difficulty by repairing the two pieces. First glue the broken parts together, under pressure if possible, and allow to set over night. The leg will then appear as at Fig. 2. Next saw the leg in two pieces at a convenient meeting, as indicated by the arrow of the turn-



ber of the turn- to centre, bore and fit a $\frac{1}{8}$ in. or a $\frac{1}{4}$ in. dowel long enough to pass through and hold the original break (see Fig. 3). Groove the dowels to allow the air and the glue to escape. Use a clamp to give pressure to the joint if possible. This method makes quite a good job of the repair.—WALTER HILL (Wigan).

GENTLEMAN'S DRESSING CHEST

ONE has come to take rather for granted the bedroom suite with its three pieces. It is true that the washstand has in most cases been replaced by the chest, but this usually follows conventional lines. In the chest given in Fig. 1 an effort has been made to climb out of the rut, and produce an article essentially suited to modern requirements. It has three useful drawers, two small and one large, and a cupboard space beneath in which are two commodious trays and room for a trousers press. The style is modern, although there is nothing bizarre about it. The receding top, the unusual treatment of the doors and the fret are features indicating the present day trend in design.

Fig. 2 gives the main sizes, and Fig. 3 the general carcass construction. The ends are framed together with mortise and tenon joints and have grooved-in panels. Dovetail joints are used for the front and back top rails, whilst the others are tenoned in. One point to note is that the bottom front rail is set back by the thickness of the doors which stand in front of it. To support the centre runner of the top drawers an upright is tenoned below the top back rail as in Fig. 3. All other runners are stub-tenoned to the front rails and screwed at the back in the usual way.

Make up the ends first. The rails are flush

with the legs so that there is no need to re-set the mortise gauge when marking out. The grooves run right through in the rails, making it necessary to shoulder back the tenons by the depth of the groove. In the case of the posts the grooves must not run lower than the bottom rails. Consequently, the plough cannot be used throughout. Take out as much as possible with it and finish off with the router. All mortises should be cut before the grooving is begun because it would be awkward to use the chisel, the groove taking out the gauge marks and making the chopping difficult. Before glueing up, the mortises for the front and back rails can be cut, but it is advisable to leave the dovetails of the top rails until after, because they fit into both the posts and the rails. The outer corners of the posts can be either beaded or chamfered.

An enlarged view of these joints is given in Fig. 4. It will be found an advantage to arrange the ends of both large and auxiliary dovetails level. When

glueing up, the tenoned rails are put in first, the top drawer division next, and the top rails last. Test carefully for squareness before putting aside for the glue to set.

Fig. 4 shows how the runners are fixed. Notice how the groove is cut away at the back to simplify the screwing. Guides must be added level with the posts. They are glued and nailed to the

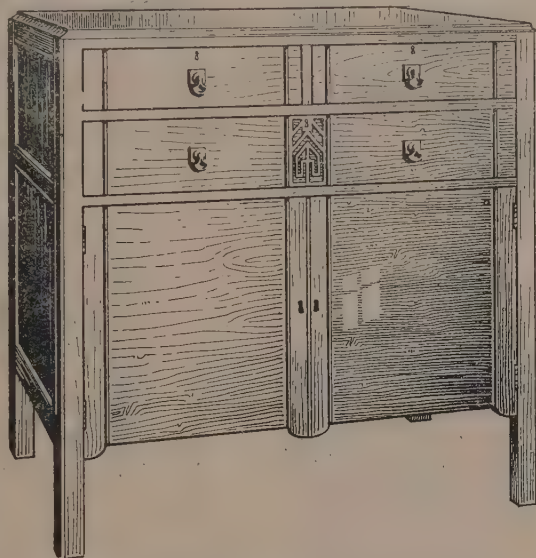


FIG. 1. GENTLEMAN'S DRESSING CHEST.
WIDTH, 3 FT. HEIGHT, 3 FT. 3 INS.

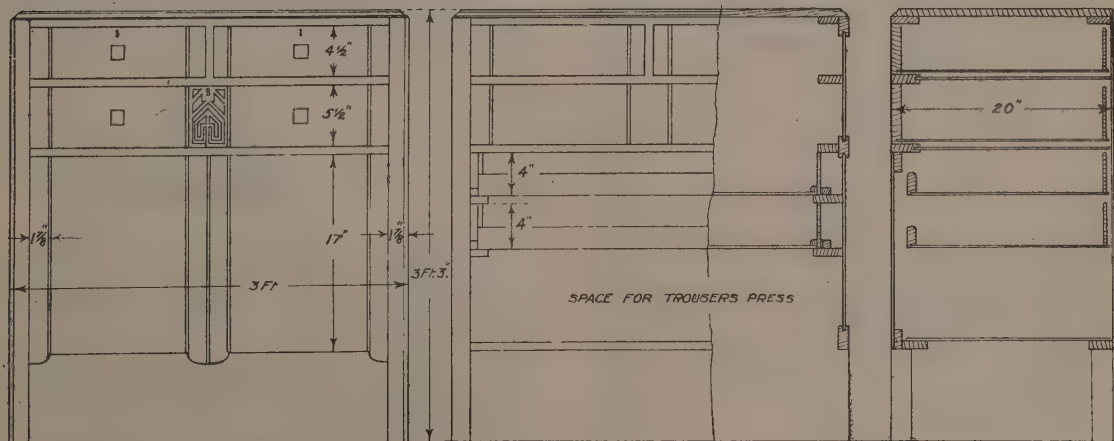


FIG. 2. FRONT ELEVATION WITH SIZES, INTERIOR VIEW AND SECTIONS.

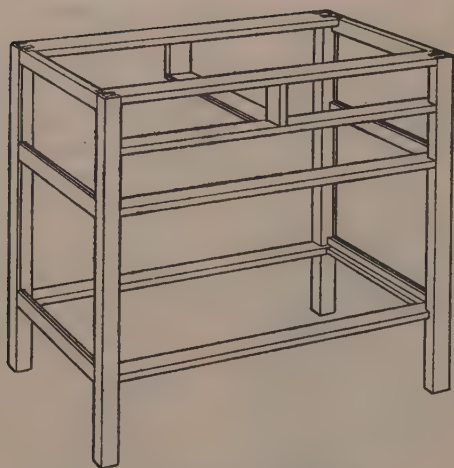


FIG. 3. CARCASE CONSTRUCTION.

runners not the panels. This is important, as to fix them here would probably cause the panels to split. Similar but wider runners are added below to support the trays. See Fig. 2. It should be noted that the guides stand out from the posts. This is because the trays must clear the doors when withdrawn. Were the trays made the full length it would be necessary to fold the doors right back before the trays could be pulled out. Even then they would probably rub the hinges.

The main frames of the trays are dovetailed together. The fronts are about 2 ins. wide, and the deep sides are curved down to meet them. Plywood can be used for the bottoms. Inner slips can be glued round to take them. Alternatively, webbing can be tacked across at intervals.

Figs. 5 and 6 show how the doors are put together. It will be noticed that the rails are thinner than the stiles by the thickness of the plywood panels. When the last named are fixed the effect is that of a clamped door. In order to give the panels support at the sides the stiles are rebated to line up with the rails. The front edges of the rebates are chamfered back, also the edges of the panels, thus giving the appearance of a V groove. It may be objected

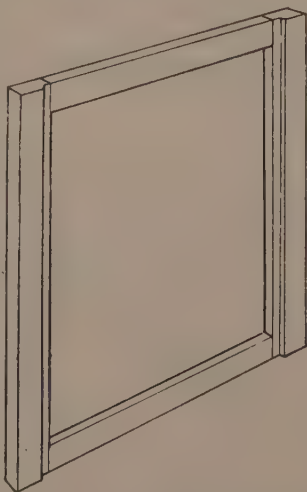


FIG. 5. HOW DOORS ARE MADE.

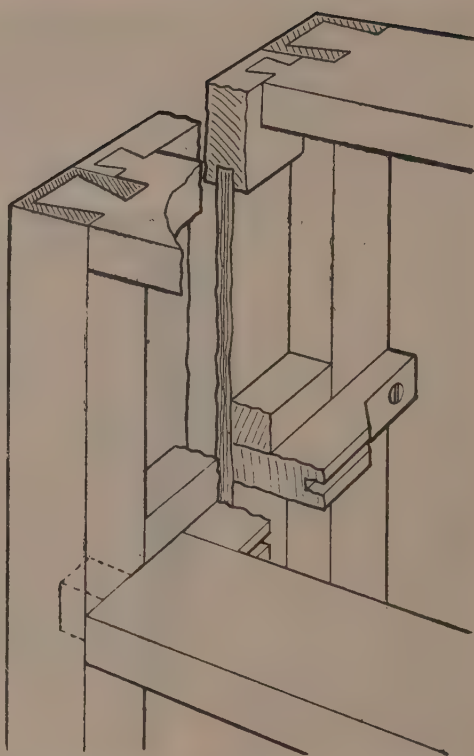


FIG. 4. ENLARGED VIEW OF TOP CORNER JOINTS.

that the thicknesses of the plywood show, but this is barely noticeable when the job has been stained and polished. The panels are glued in. It is because of this that plywood is essential. Solid wood would almost certainly split.

To give a sense of continuity the V grooves are continued upwards across the drawer fronts, and a thin fret, half of which is given full size in Fig. 7, is glued to the lower drawer. Small squares about $\frac{1}{4}$ in. thick serve as back plates for the handles. The top is moulded and is screwed on from through the rails. The back can be of the plain muntin type.

(See Fig. 7 and Cutting List on next page).

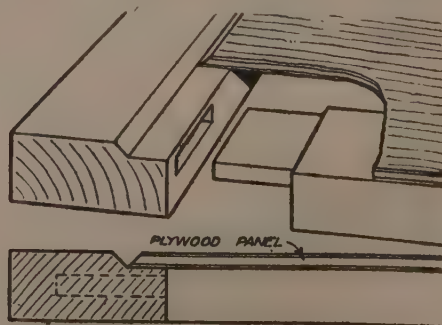


FIG. 6. DETAIL OF DOOR JOINTS.

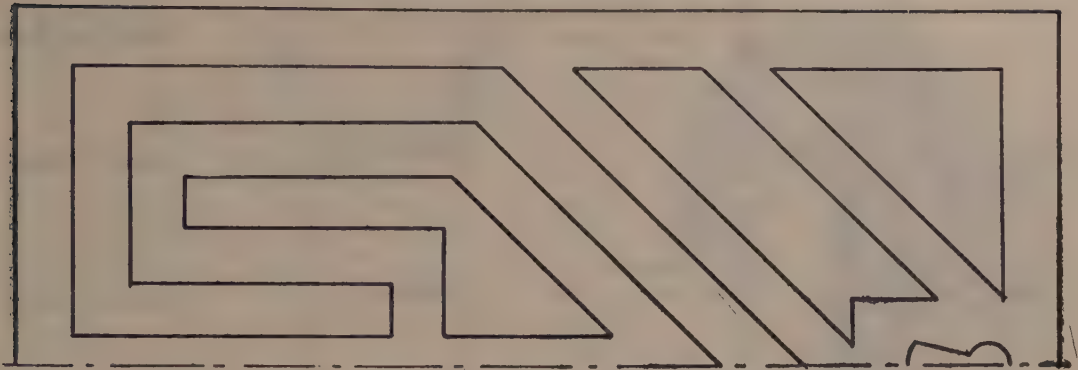


FIG. 7. HALF DIAGRAM OF FRET ON DRAWER FRONT, FULL SIZE.

THE CUTTING LIST is as follows:—

		Long. ft. ins.	Wide. ins.	Thick. ins.		Long. ft. ins.	Wide. ins.	Thick. ins.
4 Posts	...	3 3	2	2	2 Runners	1 6½	2½	¾
6 Rails	...	3 0	3	¾	4 Runners	1 6½	3½	¾
2 Rails	...	0 6	3	¾	1 Runner	1 6½	2½	¾
6 Rails	...	1 8	2½	¾	2 Drawer fronts	1 4½	4½	¾
2 Panels	...	0 10½	17½	¾	1 Drawer front	2 8½	5½	¾
3 Panels	...	1 4½	17½	¾	Sides and backs of ¾ in. Bottoms of plywood.			
2 Muntins	...	2 6½	5	¾	4 Door stiles	1 7	2	1
3 Panels	...	2 6½	10	¾	4 Door rails	1 4	2	¾
1 Top	...	3 0	20	¾	2 Door panels	1 1	18	ply.
4 Runners	...	1 6½	2½	¾	2 Tray fronts	2 7½	2½	1
					Sides and backs of ¾ in. Bottoms of plywood. (143)			

ROSEMARY PINE.—A cargo of one inch boards was recently shipped to Liverpool, and on arrival the wood was found to be a new species. It has not as yet been classified by the botanists, and in the absence of a correct botanical name has been called "rosemary pine." The wood appears to be similar to a very mild kind of pitch pine and its foliage resembles that of the yellow pine. It has a faint odour reminiscent of Port Orford cedar. Unfortunately, the boards contained about twenty-five to thirty per cent. of sapwood, and it leaves the buyer guessing as to the amount of sap contained in the bulk. The wood might give the observer the impression that pitch pine, yellow pine and Port Orford cedar had been grafted together; yet, strange to say, the timber is from the virgin forests of Tennessee. It appears to be very suitable for making into matchboarding for shops and office fitments, and as it is practically free from knots we should like to see more of it.

(171)

"HOUSEHOLD REPAIRS AND RENOVATIONS."—Here is virtually a new book, all the subjects revised, the chapters re-written and new illustrations prepared. Can you distemper a ceiling? Can you paint or wallpaper a room? Can you enamel a bath? Can you repair floors, doors, locks, sash lines, taps, etc.? If not, a book of the kind will save you pounds every year. Entirely new features, specially written and illustrated for this revised edition, are on the upkeep of electric bells, the overhauling of elec-

tric lighting system and on the installation and upkeep of wireless. To the man who knows how to handle tools in a simple way, even although he may not classify himself as an expert wood-worker, the volume should prove indispensable. (Price 3/6 net.) Evans Bros. Ltd., Montague House, Russell Square, London, W.C.1.

VENEERS.—As a general rule the more costly and rarer veneers are used very sparingly, and this is not to be wondered at when it is known that a high figure like £50 has been paid for a slab of very fine amboyna wood measuring about 2 feet diameter by a foot thick, which had been cut into veneers. Amboyna is of a light brown colour, somewhat resembling the shade of a light filbert nut. It is well mottled, and has darker chestnut coloured knots or eyes.

TO PRESERVE YOUR TOOLS.—If metal or steel planes and similar articles have to be stored for a considerable time, paint them over with hot mutton fat. This, when cold, forms a skin over them and prevents rust. It is easily cleaned off by warming the tools and wiping the grease away with a piece of cotton waste or sponge cloth that has been wrung out in paraffin. A precaution of this kind is especially necessary during the winter months.

MAKING A DOG KENNEL.—See the March number, page 74, still available.

OCCASIONAL BOOK TABLE

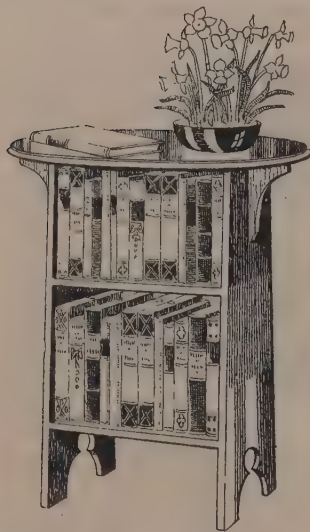


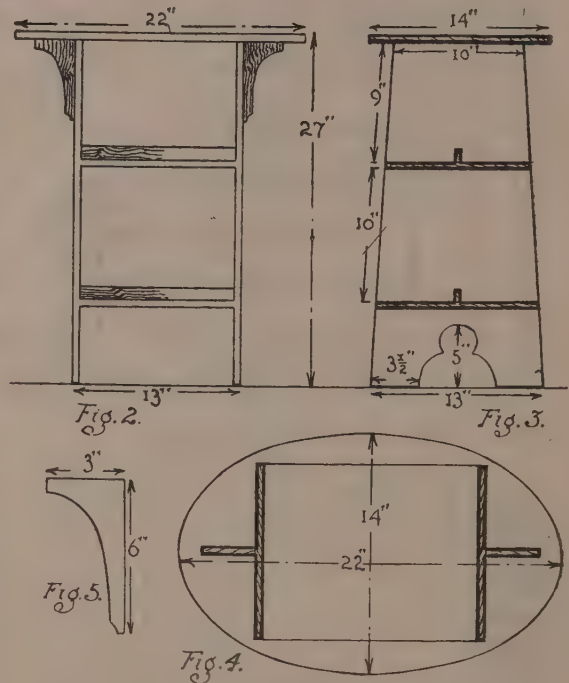
FIG. 1.—BOOK TABLE.

THIS useful little piece serves the double purpose of a table and a book stand. It is made with an oval top, and the shelves are wide enough to hold two rows of books with accommodation for from three to four dozen volumes. The work, which is quite simple, may be carried out in any of the cabinet woods of $\frac{1}{4}$ in. thickness, selected to harmonise with the other furniture. A sketch of the table is given at Fig. 1, and

working details at Figs. 2 to 5.

The parts required to make the table are: two sides, 27 ins. long by 13 ins. wide at the bottom, tapering to 10 ins. at the top; two shelves, 13 ins. long, one being $12\frac{1}{2}$ ins. wide and the other 11 ins. wide; top, 22 ins. long by 14 ins. wide; two slips for shelves, 12 ins. long by 1 in. wide, and four brackets 6 ins. long by 3 ins. wide.

In framing the parts together the shelves are tenoned into the sides in the positions shown at Figs. 2 and 3 and the sides are tenoned up into the top, the tenons being $\frac{1}{2}$ in. long. The sides and top are shaped as at Figs. 3 and 4. The



FIGS. 2 TO 5.—DETAILS OF CONSTRUCTION.

edges of the top could be rounded, chamfered or moulded, and the joints are glued.

The brackets are shaped as at Fig. 5, and could be tenoned up into the top. They are glued and pinned in place, while the slips are glued and pinned across the shelves. (169)

SIMPLE STAINS FOR INEXPENSIVE WOODS

TIMBERS such as American whitewood, tupelo, magnolia, satin walnut, oak, birch, beech and poplar may be stained to a walnut colour with the following home-made stain: Take $\frac{1}{4}$ lb. vandyke brown and mix it into a paste with six ounces of strong liquid ammonia, adding warm water to thin it to the desired shade. An ounce of liquid glue added to the stain will assist it to bind or strike into the wood.

A solution of bichromate of potash may be used to thin the above mixture instead of water if thought desirable.

Mahogany water stain crystals may be purchased ready made, and these, when dissolved in water, will stain any of the above woods, except oak, to a mahogany shade. The addition of a little vinegar to the mahogany stain will make it bite on the wood, which might naturally be of a greasy or resinous nature.

Another cheap mahogany stain is to obtain one pound of burnt sienna ground in water. This is usually in paste formation and all ready packed

in tins. Dilute the paste with warm water and add a little liquid glue to act as a binder. Use the stain lukewarm, wipe off any excess, and then straighten off evenly and give a grain effect to the work by lightly wiping over the semi-dry stain with a soft dust brush of the household type.

HOME MADE WOOD FILLERS may be made as follows:—Take finely powdered dry whiting, put it into a tin and mix it to a paste with turpentine. (Occasionally methylated spirits is used instead of turpentine). The paste has now to be coloured to match the wood, and this may be done by adding powdered rose pink for mahogany coloured wood, vandyke brown for walnut wood, or a mixture of vandyke brown and brown umber according to the shade required. Yellow ochre is used for light oak, or, in fact, a combination of the above dry colours which will match the wood. To bind the filler in the pores of the wood it is necessary to add a little painter's gold size. The gold size is added when turpentine is used as a solvent, but not when methylated spirits is used. Some workers prefer to add a

A LIGHT PLANT STOOL

little powdered pumice stone to the whiting in the first instance.

BROWN OR ORANGE FRENCH POLISH is made by dissolving six or seven ounces of orange shellac to the pint of methylated spirits. Transparent or white french polish is made by dissolving seven to eight ounces of white (called bleached) shellac to the pint of methylated spirits.

Real mahogany should not be stained to a dark walnut colour, but if necessary in extreme cases the walnut stain mentioned previously will answer the purpose. Red deal, white deal and yellow pine do not stain and polish or spirit varnish nicely. They always appear to be palpable forgeries of the suggested woods which they are supposed to represent.

Real oak may be darkened by staining it with a strong solution of common washing soda. Oak, too, may be stained to a golden tone with a solution of bichromate of potash—about half an ounce of bichromate of potash crystals to a pint of lukewarm water. Permanganate of potash is sometimes used to stain oak to a dark shade, but this stain fades rapidly and is best avoided. (200)



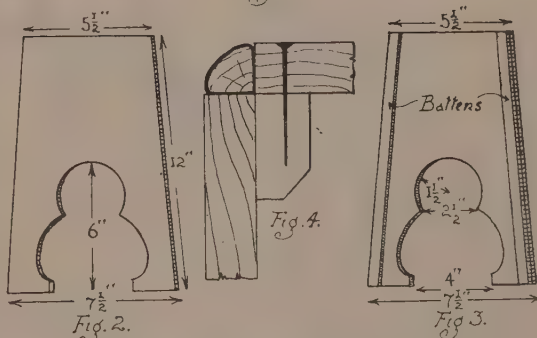
Fig. 1

Light Plant Stool

THIS plant stool (Fig. 1) affords opportunity for the use of $\frac{1}{4}$ in. plywood, the four sides and top being all cut from this, the woodworker's cheapest material.

THE STOOL, which measures 8 in. square at the top and stands 12 in. high, is constructed in a very simple manner. The four sides are shaped as at Figs. 2 and 3, and battens, $\frac{1}{4}$ in. wide by $\frac{1}{4}$ in. thick, are fixed with glue and small pins to the edges of two of them. In fixing the sides together, two sides are glued and pinned to the battens on the other sides, a $\frac{1}{4}$ in. angle being left for the reception of $\frac{1}{4}$ in. quarter-round turned beading, as at Fig. 4. Two or three pins will be quite sufficient to fix each joint, their heads being punched and stopped in. The beading could be of a twist pattern.

THE TOP is cut 8 in. square and fixed with glue blocks, while the edges are finished with $\frac{1}{4}$ in. half-round beading. Ornamental frets, measuring from 2 in. to 3 in. and preferably of a circular pattern, should be fixed to two opposite or all four sides. (205)



SKETCH AND DETAILS OF PLANT STOOL.

to penetrate to every corner of the dwelling. In one cottage is a fire-place that can be used for heating either the lounge or dining room by the movement of a simple shutter; at meal times the fire can be switched over to the dining room and back again to the lounge afterwards, which makes for economy and reduces labour. Another incorporates a well designed Doric portico with a balcony above. The portico communicates with the hall through three pairs of metal casement doors, which in suitable weather may be thrown open to provide an almost complete open-air apartment for use as a sun lounge.

Apart from these features we have exhibits of every kind of furniture and household appliance. The exhibition remains open till April 17th.

The Ideal Home

THE IDEAL HOME EXHIBITION, held as usual at the Olympia, has again some novel (as well as a host of interesting) features. The "House that Jack Built," erected under the direction of Mr. Douglas G. Tanner, F.R.I.B.A., is designed primarily to meet the definite requirements of women. In the "Village of ideal homes" it is the centre of attraction. Many of the houses in this romantic village pre-assume unlimited sunshine, and very interesting are the devices resorted to by architects to induce the sun's rays

"THE WOODWORKER" 1920 volume, strongly bound in dark green cloth and with complete index, price 6s. 6d. net. Evans Brothers, Ltd., Montague House, Russell Square, London, W.C.1.

HOME CARPENTRY

A PAIR OF HOUSEHOLD STEPS

THE making of a pair of household steps is one of the jobs than can be comfortably tackled by the beginner, as slight inaccuracies in measurements and in the angles are of little moment. The angle at the bottom of the steps may be slightly altered so as to bed to a level floor surface after the steps are made, and the shape at the top of the stretcher frame may, if necessary, be slightly modified if the worker gets into difficulties when chiselling the wood to shape.

At Fig. 1 is given a perspective sketch of the completed steps when opened out. The finish will be as follows:—After glasspapering give the steps one coat of shellac spirit varnish made by dissolving 6 ozs. of orange shellac in one pint of methylated spirits, or by giving the steps one coat of painter's knotting. When dry slightly ease down any roughness of grain with No. 1 glasspaper, and then at intervals give two coats of Johnson's underlac or two coats of outside oil varnish.

At Fig. 2 is illustrated a stop trestle hinge. One pair will be required to fix the step frames together. If a pair of 8 in. hinges of this type be used it will be unnecessary to fit to the steps the iron folding action shown at Fig. 1; with smaller hinges it is advisable to fit these irons. (As some difficulty in obtaining these fittings may crop up at the local stores it may be added that the writer procured his from Messrs. Till and Whitehead, Ltd., cabinet ironmongers, of Chester Road, Manchester). Needless to say, one wing of each hinge should be secured with a small nut and bolt; the other holes may be fitted with ordinary screws of a strong gauge.

Fig. 3 indicates the angles to which the joiner's bevel will have to be set (as at A, B and C), but those who do not possess this appliance can easily make an improvised bevel by glueing and nailing four strips of thin wood or 5 m.m. plywood together as suggested at Fig. 4. If the worker objects to the wooden blade at A he may substitute a strip of steel cut off a disused bed lath. A simple and efficient method of making a pattern for the shaped handles is given at Fig. 5. Take a piece of stiff paper of convenient size and fold it down the centre line (A); then mark a parallel line to it at B, the distance between the lines being $\frac{1}{8}$ in. Draw a freehand curve as indicated and

cut it out of the folded paper with a pair of scissors. This pattern will in due course be laid on the wood and traced.

PLANE UP all the long edges of the wood perfectly straight and square and place on each piece the face and the edge mark. It will facilitate the edge planing if the plane be held as at Fig. 6, allowing the tips of the fingers to run against the side of the wood. Either a 14 in.

metal plane or a nicely conditioned wooden plane will answer the purpose.

After the face, sides and the edges have been wrought and marked, the four long pieces will have to be gauged and planed to their exact width. The method of using the marking gauge for this purpose is shown at Fig. 7. The gauge should be tilted slightly forward so that the edge of the stem and the point of the steel spur just touch the face of the wood. If the marking gauge be held so that the spur be vertical it will have a tendency to follow the inequalities of the grain of the wood and a wobbly line will be the result. After planing away the waste wood to the gauge line the maker turns his

attention to thickening his wood, which he gauges and planes to the requisite size.

STEPS.—Turn now to the marking out of the step sides and notice that these pieces will have to be "handed," or marked out to pair with each other as at Fig. 8. The joiner's (or home made) bevel is held firmly by the *three-and-thumb* method against the edge of the wood with the left hand as at A, Fig. 9, and the line across the face of the side is deeply scored into the wood with a sharp knife. The second line (B) is then scored and the distance between the two lines is exactly equal to the thickness of the tread. After setting out one step side (as at Fig. 9) place the two sides one against the other as at Fig. 8, and mark the second side to agree with the first and thus ensure that the marking is "handed."

The next operation is to set the marking gauge to $\frac{1}{4}$ in. and mark the edges of the step sides to the required depth of the housings. All is now ready for sawing and chiselling out the wood, and this is accomplished by first cutting a small channel as at Fig. 9, C. It will here be realised that a pencil line would be useless if it had been used for marking instead of the knife. After chisel-



FIG. 1.—HOUSEHOLD STEPS.

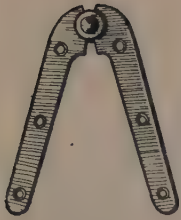


FIG. 2.—
TREISTLE
HINGE.

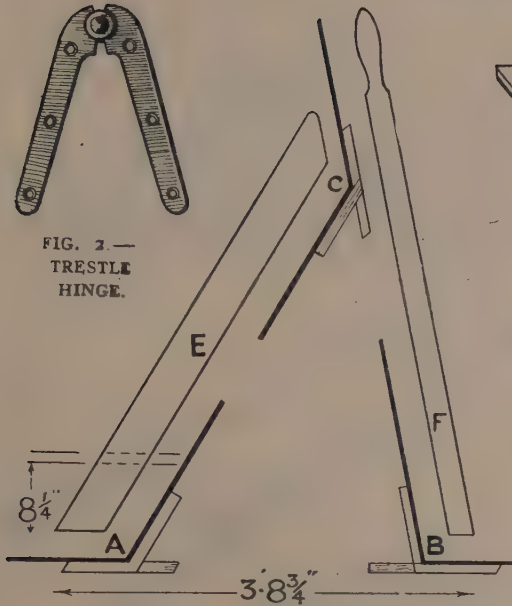


FIG. 3.—ANGLES AND SIZES.

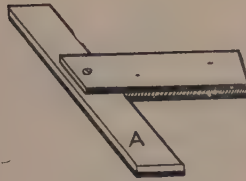


FIG. 4.—IMPROVED
BEVEL MADE
FROM STRIPS OF
WOOD.

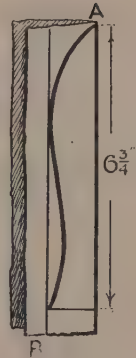


FIG. 5.—
PATTERN
FOR
SHAPED
HANDLE.

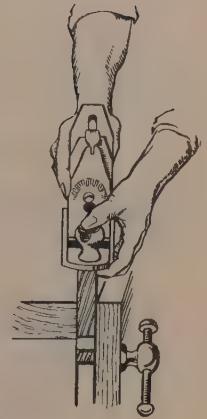


FIG. 6.—
METHOD OF
GUIDING PLANE
WITH FINGER
TIPS.

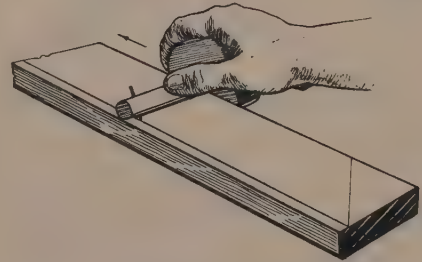


FIG. 7.—MARKING THE LONG PIECES
WITH THE GAUGE.

ling away a small channel at each side of the housing so as to form a guide for the saw blade and thus obviate the saw slipping and defacing the work, the saw is placed in the formed nick and the wood cut down to the gauge line at Fig. 9, D. With the chisel cut to right and to left as at E, and then gradually pare away the core until the bottom of the housing is perfectly level when tested with the try square blade (F).

The top and bottom of the sides may now be sawn off to the bevels given at Fig. 3 A and C.

Next take the top and bottom treads in hand and saw and plane their ends at right angles to their long edges so that the top tread measures $11\frac{1}{8}$ in. and the bottom one $16\frac{1}{2}$ in. Fix (temporarily) both the bottom and the top tread to the sides as at Fig. 11, leaving the edges of the treads projecting slightly so that they can be eased off with the plane to the required bevel when all is completed.

Now take a thin lath of wood or two rules and measure the diagonals as indicated by the arrow lines Fig. 11. These diagonals must agree if the steps are to appear symmetrical. If they do not agree the steps will have a lop-sided appearance and they must be forced into a correct position before fitting in the intermediate treads. The slight bevel on the ends of the treads is

usually disregarded when making steps of this pattern, because the sides will nail up and compress the wood slightly. The worker can, however, ease them slightly with his plane if he thinks this desirable.

After fitting in all the treads and again checking the diagonals, the sides may be finally nailed to treads with $2\frac{1}{2}$ in. round wire nails, three nails into the end of each tread. The projecting edges of the treads are now planed off flush with the insides of the steps, but are allowed to project slightly at the front and the corners chiselled off as in Fig. 1.

THE BACK (OR STRETCHER) FRAME (Fig. 12) is now taken in hand and the two long rails are wrought to the shape of the paper pattern previously referred to. A simple way to form the handles is to cut into the edges of the wood a series of saw

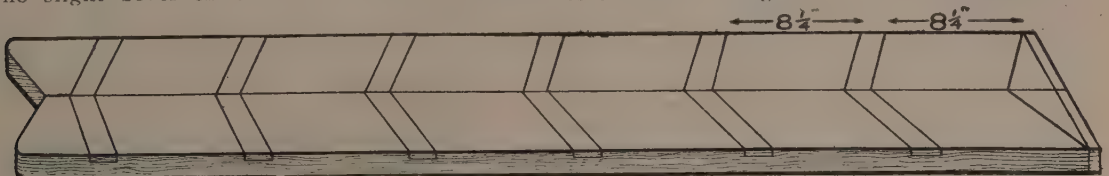


FIG. 8.—METHOD OF MARKING THE SIDES IN PAIRS.

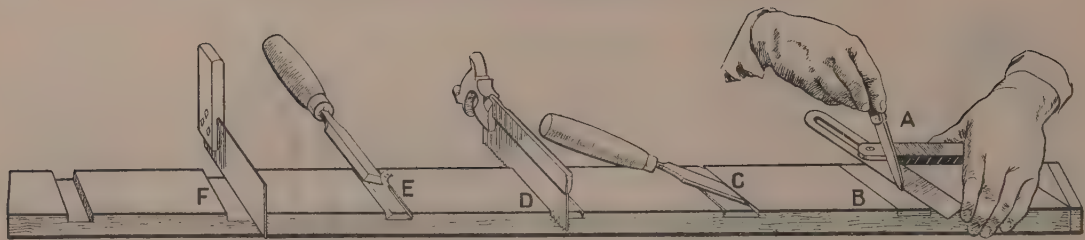


FIG. 9.—SHOWING THE SEQUENCE OF TOOL OPERATIONS.

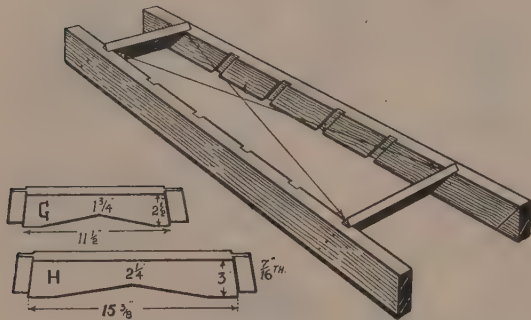


FIG. 10.—SHOULDERS.

FIG. 11.—THE SIDES.

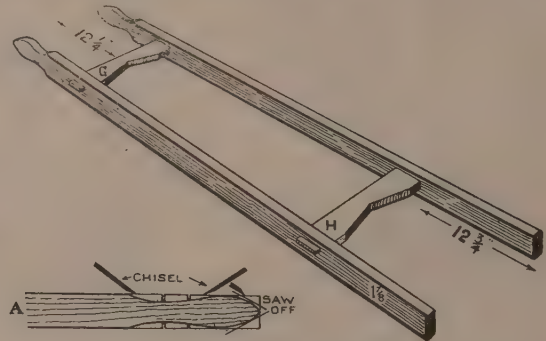


FIG. 12.—VIEW OF STRETCHER FRAME.

kerfs as at Fig. 12A and then pare away the wood with a 1 in. chisel. Note the direction of the chisels, which shows how the change of grain is overcome. (In this article the non-possession of a bow saw is assumed). After carefully paring up the handles, ease off the sharp edges with the chisel and glasspaper smooth.

The simplest way for the novice to build the stretcher frame (Fig. 12) is to mark out the pieces when they are laid in position on the back of Fig. 11. This will enable him to obtain the correct bevels at the shoulders of G and H, Fig. 10, without the slightest difficulty.

The method of shaping the cross rails (G and H) is by sawing and chiselling on the straight lines. The tenons consist of nothing but simple straight sawing to a line, and their thickness may be marked out by two settings of the marking gauge if no mortise gauge be as yet in your kit of tools. The mortise holes have their cones bored out with a suitable centre bit, and the surplus wood is then pared away at the ends with a 1/2 in. chisel and the sides of the mortise cleaned up with a 3/4 in. chisel.

The chiselling should commence at the face side of the wood and the mortise should be pared out for half its depth; then the wood should be turned over and the chiselling cuts should meet and overlap at the centre of the wood so as to avoid splintered edges on the mortise holes. The cross pieces (G and H) are glued and knocked into their respective positions and wedged up, and it is good practice to allow the tenons to project through the sides (Fig. 12) and to saw them off after the work is completed.

TO HINGE THE STEPS TOGETHER, place the

stretcher frame on the back of the step frame, and particularly note that the axis of the pivot of the hinge agrees and come exactly over point C, Fig. 3, of the step frame. Sink a slight recess to receive the rivet and washer, and then screw each wing of the hinge on to the woodwork with two short temporary screws. When the best position is found for the hinge wings, both in an open and a closed position, fix a 1/2 in. nut and bolt into the centre hole of each wing and a 1 in. stout screw through the upper and lower holes of each. Open the steps, stand them on a level floor, and if necessary make any slight adjustment by paring or sawing the ends so that they bed.

The following timber will be required:—

		Long.	Wide.	Thick.
		ft. in.	in.	in.
2 Sides (E)	5	0	3	7/8
2 Ditto (F)	5	4	1 1/2	7/8
Cross rail (G)	1	2	2 1/2	7/8
Ditto (H)	1	5 1/2	3	7/8
Top step	1	0 1/2	4 1/2	7/8
Second step	1	1 1/2	4 1/2	7/8
Third step	1	2 1/2	4 1/2	7/8
Fourth step	1	3 1/2	4 1/2	7/8
Fifth step	1	4 1/2	4 1/2	7/8
Sixth step	1	5 1/2	4 1/2	7/8

One 3/8 in. diam. bolt with nut and washers, 18 in. long to fit under fifth step. For sides (E) use clean red deal. Treads may be of white deal. Due allowances have been made in the lengths quoted.

Sand off the woodwork and complete by the varnishing method already referred to, and you have a pair of household steps that will last you twenty-five years or more.

THE QUESTION BOX

QUESTIONS only of general interest can be answered in these columns. Readers will kindly note:—(1) Detailed replies or sketches cannot under any circumstances be sent by post; but, as the Editor may require further information, a stamped addressed envelope should be enclosed. (2) Full particulars of what is required should be clearly stated, and (if possible) a rough sketch with over-all sizes enclosed. (3) Questions of purely personal interest cannot be dealt with in these columns.

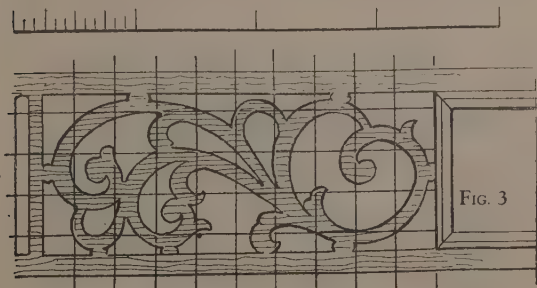
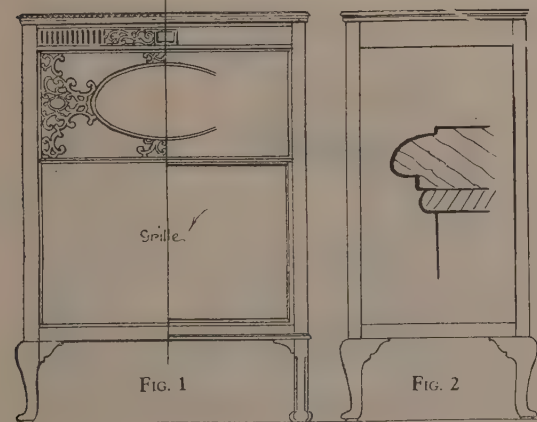
NOTE.—With each Query must be sent a Coupon (see foot of page iv. of cover). All queries to be addressed: Editor, THE WOODWORKER, Montague House, Russell Square, London, W.C.1.

Decorating a Wireless Cabinet

J. R. P. (Stoke-on-Trent) asks for advice in the decoration of a wireless cabinet he is making.

REPLY.—We show a front and end elevation for the cabinet, based on your own pencilled sketch and including the desired additions, dimensions being 3 ft. 4½ in. high, width 2 ft. 4 in. and depth 1 ft. 6 in. carcase measurements. The edge of the table top would look well with a neat leaf detail, but this might be either a rope or nulling type, or the part might be relieved by the mounting of a length of pearl-and-bead detail in a hollow member. Either a straight or a cabriole leg might be used with this design. It would probably be preferable to fit the cabriole, which would look less stiff in the finished effect in conjunction with the desired oval and other scroll work indicated. Fig. 3, showing the frieze of Fig. 1, would have a central panel formed by a neat ½ in. section mould mitred up and laid on face to finish 5 in. wide. On either side of this the enlarged fret shown mapped out in ½ in. squares should be cleanly

cut and the flute effect beyond these frets at each end could either be fret-cut or recessed by use of a small gouge to be cut in between spaced lines previously scratched so that a clean result is the more easily obtained. The whole thing could be cut in one length from ½ in. thickness, the height allowed for the frieze being less than 2 in. net. Fig. 2 contains also a suitable section mould for table top, a portion of which we presume you wish to be hinged to open up and shut down upon a ½ in. by 1½ in. capping frame, fitted to the carcase as a rim surround to finish flush with the legs on the inner edges. Ordinary brass butts can be used for hinging or a superior effect can be obtained by fitting a length of piano hinge for the purpose. The frets surrounding the required oval, which we understand is to measure 14 in. by 7 in., may be cut in duplicate under one operation, whilst the bead surround to the oval itself against which the frets will stop may be steamed and sprung into position and fixed by glueing and needle-points. (196)



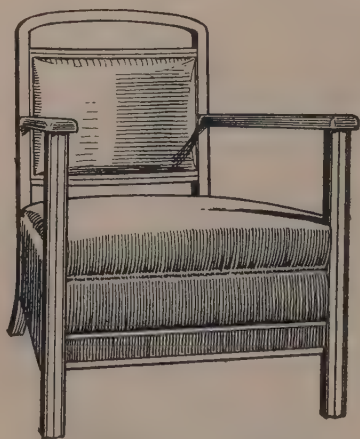
DECORATING A WIRELESS CABINET.

To Finish English Brown Oak

T. E. R. (Clitheroe) has made an oak bedding chest with raised and carved panels. The wood is English oak of a brown cast, and he would like to obtain an antique finish.

REPLY.—From your description the wood appears to be English brown oak, and if this is the case you should equalise the colour by staining the whole of the chest with a weak solution of bichromate of potash, about ½ oz. bichromate of potash to 1½ pints of water. Try out your stain on a piece of the oak scrap wood. When the stain is dry ease down the raised grain with No. 1. or No. 0 glasspaper, then dust thoroughly and apply a coat of french polish with a gilder's mop brush. Wax the job, say, once a week for a month and it will assume a pleasing finish.

If the wood is not brown oak but simply a dark shade of natural oak we should advise fuming the job. Place your bedding chest (with the lid open) in a small closet such as is usually to be found under a staircase. Obtain a quart of .880 liquid ammonia. Place on the floor four ordinary soup plates, one plate near each corner of the chest, and into each pour equal quantities of the ammonia. Shut the room or closet up and make it as airtight as possible, leaving the work in this ammonia fume for forty-eight hours. After this place the chest in the open air for about a couple of hours to sweeten, then give a coat of white polish. Ease with No. 1 and No. 0 glasspaper and wax the job repeatedly. (192)



FIRESIDE ARM CHAIR.

Fireside Armchair

T. L. F. (Edinburgh) asks for particulars as to the construction of a light fireside arm chair.

REPLY.—The accompanying illustration shows a chair suitable for your purpose. It could be carried out in practically any hardwood as the design, without being characterless, is sufficiently indeterminate to go well with almost any style. It could measure 21 ins. over the legs at the front and taper to 16 ins. at the back. A depth of 20 ins. over all (measuring seat rails) is suitable. The seat should not be more than 15 ins. high over the upholstery. This will give a space of about 5 ins. beneath the rails. For the arms a height of 22 or 23 ins. will be about right. They can drop about 2 ins. at the back. The front legs are of $1\frac{1}{2}$ or $1\frac{3}{4}$ in. squares with a flat moulding worked along their length. A rake of about 3 ins. is suitable for the back legs. The rails should curve backwards to about $1\frac{1}{2}$ ins. in the centre. You will find full constructional details of a similar chair on page 54 of the February number. (199)

Overmantel

W. W. B. (Northampton) wishes to make an overmantel and asks for directions.

REPLY.—We note that you wish to mount your own mirror, size of which is 2 ft. 4 in. long by 18 in., rising to 20 in. wide in centre. We offer two suggestions, the first of these being based somewhat on the lines of your own rough sketch. The supporting column might be of $1\frac{1}{2}$ in. by $1\frac{1}{2}$ in. oak. The height of this upper shelf would be 2 ft. 8 in.; height over all, 3 ft. 5 in. The lower shelf shows about $8\frac{1}{2}$ ins. high. The upper back has a corner piece overlaid on the angle, and this should serve the purpose of a neat stop for the moulded curve and its return along the upright to the canopy top. The wing panel might be about $7\frac{1}{2}$ ins. wide, framed up of $1\frac{1}{2}$ in. by 1 in.

stuff and panelled up in the manner indicated.

The alternative (Fig. 2) has the shelf omitted above, but the lower shelf might be retained with an additional box projection at the extremities of the mantel. Reference to the plan at Fig. 4 will make the idea clear and if mounted on face with a neat fret-cut device should look quite well. Under this lower shelf and between the boxes the space is panelled out with 1 in. by $\frac{1}{2}$ in. slips, each to have a small capping with a fret-cut shaping between the slips to accentuate the feature, the net result being a series of plain columns to bed upon the base mould. In line with these slips similar pieces will be mounted above and the curved upper line may be preserved by means of a shaped fret mounted to form an open pediment.

The wing panels in this case might be of solid $\frac{3}{4}$ in. thickness with a $\frac{1}{4}$ in. ovolo surround, the top of panel being cut to the outline indicated and mounted with a shaped fret out of $\frac{1}{4}$ in. thickness to be mounted and also veined as before. The total length of overmantel thus made up would be about 3 ft. 9 in., which we presume your mantel shelf would allow if the chimney-breast is 4 ft. 2 ins. wide. The plan at Fig. 3 relates to Fig. 1 and allows a back to front measurement for shelf of $4\frac{1}{2}$ ins., which might be increased if desired. Suitable sections for moulding this shelf are shown at Figs. 5 and 6, whilst the lower shelf might be finished to either of the sections (Figs. 7 and 8). (194)

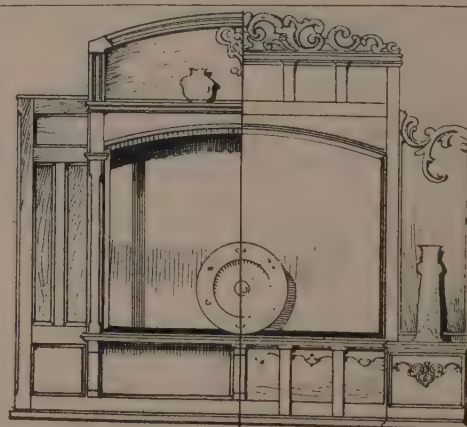


FIG. 1

FIG. 2

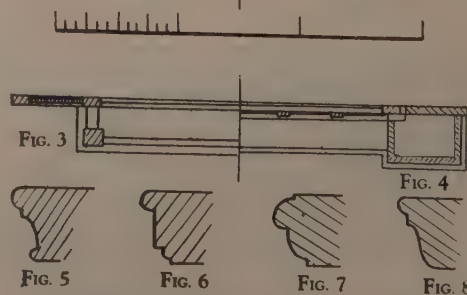


FIG. 3

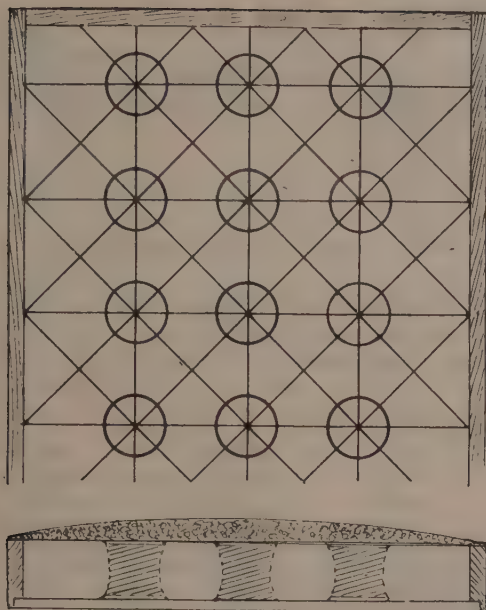
FIG. 4

FIG. 5

FIG. 6

FIG. 7

FIG. 8



METHOD OF UPHOLSTERING AN OTTOMAN.

Upholstering an Ottoman

J. P. (Coventry) asks for advice on the stuffing and finishing of an ottoman.

REPLY.—We note that you have your springs in position on webbing and presume that in selecting the springs you have considered the height of seat required. It is of course necessary to lash the springs together, fixing the laid cord to the frame by means of staples and knotting the cord to the spring wire wherever it touches in crossing. The accompanying plan shows the manner of lashing the springs, i.e., four directions of tying. If this is done with a tight hold on the cord throughout no slipping occurs. The centre row of springs, by reason of taking up any slackness and stretch of cord, will be a shade higher than those at each side, and you should get this result if you endeavour to tie all the springs quite level with the lid frame. Next cover springs with hessian, tacking this through double edges. Loops of twine about 6 ins. long will be required for securing horsehair or other stuffing. Tease out the horsehair, avoiding all lumps; distribute evenly through the loops and work up to a slight rise in centre for a nice shaped finish. Next cover with calico, tacking down the edges, and overlay with two layers of wadding, after which the final covering may be laid. Tack down back edge temporarily under lid, then stretch over seat towards front and turn over and tack temporarily on under edge. Next carefully stretch lengthways of seat and also tack temporarily. Examine and adjust the result obtained, finishing towards the corners. Cover bottom with black linen, turning in edges and tacking down. Gimp finish around lid and a

handle formed by a loop of material in use should be added, whilst the bottom of box will look well with variegated cord along the edge. In a box ottoman the box itself will be covered to match and it is usual to pad out the front and ends on the box with wadding, fibre or hair, so as to give a slight swell to the parts instead of the flat result obtained by merely covering the wood. Brass handles are sometimes fixed to ottoman ends to assist portability, and castors fixed to 4 in. by 4 in. by 1 in. blocks can be included in the finishing for the same reason. (193)

A Loose Chair Seat

R. E. B. (North Elmham) asks how to prepare horsehair for use, and how to make it up into loose chair seats, covered with rexine.

REPLY.—You say you can obtain horsehair locally direct from the stables, but this will need to be treated before you use it for stuffing purposes, otherwise it would make a seat very flat and dead. The resiliency afforded by horsehair as a stuffing is due to the fact that it is stored in the form of tightly coiled rope. Secure one end of a considerable number of strands by knotting or binding and twisting this as tightly as possible, tying each end to a stick so that the rope should not uncoil. It might be possible to influence the curl of the hair by steaming the rope and allowing this to dry in the air or sun. Afterwards it will be necessary to tease the strands out so that no lumps or unequal thicknesses are present.

(Continued on next page).

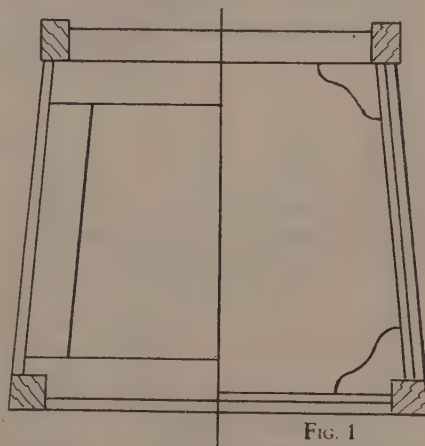


FIG. 1

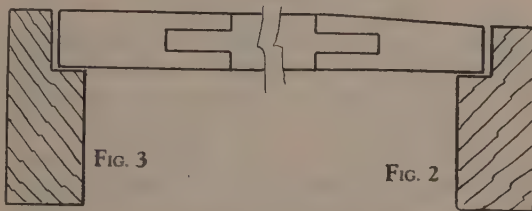


FIG. 3

FIG. 2

METHOD OF MAKING A LOOSE CHAIR SEAT.

At Fig. 1 we give a plan of a chair seat frame, one half showing the separate frame for loose seat in position and one half showing the rebate on chair seat cut for the loose seat to bed into. This loose frame may be made up of stuff 2 in. wide by $\frac{1}{2}$ in. thick, dowelled together and dropped into rebate to a size that will allow a $\frac{1}{8}$ in. space clear on all sides. Note that a rebate is not necessary in back rail of chair seat framing, as the loose seat will bed upon the back angle braces. This loose frame should be made of dry and well seasoned beech or birch. It may be slightly bevelled (Fig. 2) instead of flat (Fig. 3). In webbing the seat either three or four webs can be used, front to back webs being evenly fitted first and the side to side webs interlaced afterwards. A web strainer should be used for the purpose and the web tacked, turned over and tacked again, the object being to get even tension throughout. Next cover the webs with hessian, turning over the edge and tacking double thickness. Loop the hessian with twine, the loops being about 6 ins. long, then take hair, tease out lumps sufficiently carefully to avoid breaking up the bulk of the handful and distribute small portions through the loops, regulating the hair generally so that it is a trifle higher at front than at back. Cover with calico, working from centre of rails towards the corners to secure a level stretching and tack down with fine tacks finishing on front rail. Then cover the calico with a couple of layers of wadding cut to finish up to the outside edges of seat frame, avoiding overlap or lumps throughout. This may be again covered with calico, but the final covering is usually added next. The stuffed seat should be turned over so that the rexine can be temporarily fastened on the under side at back, then turn over and strain material over stuffing towards front evenly.

Turn over seat again and temporarily tap down under front edge. Do the same under sides of frame, inspect the result then finally tack down from centres, working along towards corners to take up any slight crease from excess of material. Finally cover the bottom with black linen, turning edges under and tacking as a finish. As the work proceeds each covering should overlap the previous one, a point to remember when cutting materials to size required. Use good quality materials throughout. (195)

A Corner Chair

J.W.T. (Blackburn) wishes to make a corner chair in mahogany, Chippendale style.

REPLY.—Actual size of seat over framing would be 18 ins. by 18 ins.; height of the seat framing from ground to top of rail, 1 ft. 5 ins., and from top of rail to top of arms at extremities, 1 ft. 6 ins., making 1 ft. 11 ins. in all, above which the centre part at back midway between the arms would rise an additional 2 ins. In getting out the parts it will be best to prepare the three back legs, using $1\frac{1}{2}$ ins. by $1\frac{1}{2}$ ins. stuff net for working in

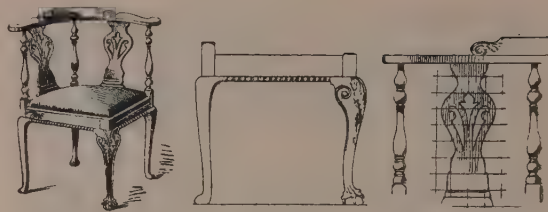


FIG. 1. FIG. 2. FIG. 3.
SUGGESTED DESIGN FOR A CORNER CHAIR.

the lathe, an additional glueing being made to the lower part to afford paring to shape for the knees and small wings attached, and also the toe shaping. The column portion of the leg may be turned with the long plain shaft you indicate, and this may be either fluted or preferably reeded, with about three turned members above and below. Turning of the type indicated here is more frequently met with, and would not involve the extra work of reeding. The mortises for the rails of the seat framing should be cut before the turning is put in hand, and the lower part will be pared away to form a rather flat cabriole type of leg. Stuff for the seat rails can be $2\frac{1}{2}$ ins. to 2 ins. wide by $1\frac{1}{2}$ ins. thick, or $1\frac{1}{2}$ ins. thickness may be used. The rebate necessary for a loose drop-in seat to bed upon can be formed by slips glued inside the seat framing, to be recessed about $\frac{1}{2}$ in. deep all round. Along the bottom edge of seat framing on two front sides a slip $\frac{1}{2}$ in. thick will be glued.

The front leg of your sketch appears to be carved, and we indicate it in this way as with a scroll and acanthus on knee and with a claw and ball foot. If, however, you are unable to carve this, it would be possible to procure a suitable leg from the sundriesman at moderate cost. The tenons in legs will be mitred to meet in centre, and the finishing width of knee at side should be about 3 ins. over the scroll. The shaped and fretcut slats will work out to a full 6 ins. at widest part, and can be cut from stuff to finish $\frac{1}{2}$ in. thick. An elevation set-out of the part mapped out in 2 in. squares is given at Fig. 3.

The arms will be of 1 in. thickness eased away to slightly less, and the portion forming the arm rest may finish 3 ins. wide. This combined arm and back can be made up of three pieces of 1 in. thickness stuff glued and dowelled together for cutting to shape, and the joints stiffened by the built-up portion forming the rise in the back.

The turned supports will enter the arms and be wedged, whilst the shaped slats are stub-tenoned in top and bottom, the bottom end being slightly advanced in the seat framing so as to give them a slight pitch or rake when fixed.

The drop-in seat itself will be made on a separate frame of 2 in. by $\frac{1}{2}$ in. wood dowelled or bridle-jointed together.

If the seat is to be permanently upholstered, the front centre leg should finish sufficiently above the seat framing to form a rebate for tacking down, the rebate being continued on the rails all round.

A COMFORTABLE EASY CHAIR

HOW TO MAKE THE FRAME AND HOW TO UPHOLSTER

AN easy chair of the divan type may vary so considerably in its particular character when upholstered that this point is well worth consideration before starting on the work. In most cases the back is finished with a scroll and is preferred considerably higher than the arms, whilst the seat height is purposely fixed at some convenient ratio to that of a dining room table. Then again, the chair may be given a tight seat finish, or it may have the seat sprung and finished with a sunk or well top upon which a loose cushion is placed. The present preference, however, is to be nearer the floor, so that with the low table had come also the lower built divan chair, with a suggestion of cosiness that is very persuasive.

The chair described here is finished with a tight back and a spring seat forming a platform for the seat cushion to fit snugly. A special feature is the square finish of the arms, which not only afford ample rest, but will be handy for laying a magazine or book. In Fig. 1, the arms appear with lessened height above the seat, but allowance here is made for the compression of the seat when occupied. The front line of the chair is emphasised by a surround of round-headed brass nails which may be inserted close together—either all of a size, or varied by the entry of a larger nail at carefully spaced intervals.

Either beech or birch will serve for the frame, but the stumps will be best of oak, walnut, or mahogany, according to the furniture to be matched, this show wood portion being cut separately and dowelled on. Dimensions for the frames are shown in Fig. 3.

THE BACK LEGS (A) finish $1\frac{1}{2}$ in. on face by $1\frac{1}{2}$ in. thick, or may be $1\frac{3}{4}$ in. by $1\frac{1}{2}$ in. where a heavier make is preferred. Side rails of seat (B) are 3 in. by $1\frac{1}{2}$ in. or $1\frac{3}{4}$ in. thick; back rail (C) is 3 in. by $1\frac{1}{2}$ in. or $1\frac{3}{4}$ in. thick; front rail (D) 3 in. by $1\frac{1}{2}$ in. or $1\frac{3}{4}$ in., with the under edge arched to finish 2 in. wide in centre. A stuffing rail above front rail is sometimes fitted, and if required may finish $1\frac{1}{2}$ in. by $1\frac{1}{2}$ in. Corresponding stuffing rails (E) above side and back rails will also be of $1\frac{1}{2}$ in. by $1\frac{1}{2}$ in. Front legs with arm supports (F) are a clean up from 2 in. by 2 in.; top back rail (G), $3\frac{1}{2}$ in. by $1\frac{1}{2}$ in. thick; arms (H), 2 in. by $1\frac{1}{2}$ in.; height of arms, 1 ft.

7 in. from ground; height of top rail above back seat rail, 1 ft. 10 in.

It should be realised that, in a chair, even an inch either way makes a considerable difference, but the dimensions given above may be taken as approximate for a fairly large and deeply seated easy chair frame which may well be classed on the luxurious side when well upholstered. The square scroll portion of the arm is obtained by dowelling and glueing an additional piece (in this case about 4 in. by $2\frac{1}{2}$ in. by 1 in.) on to the leg upright. The kick for outward splay of the back leg may be obtained in the same manner, or can be cut in one piece as preferred.

The actual finish of the squat legs has the

angles chamfered from a point immediately under the front rail, and blocks about $3\frac{1}{2}$ in. by $1\frac{1}{2}$ in. may be dowelled on and chamfered in continuation of the short stump above. An end elevation of chair showing set back of arm and rake of back legs is seen in Fig. 3.

The side and back stuffing rails are in line, and have a fixing about 2 in. or so above the seat rails. All joints are best mortised and tenoned, but are often dowelled. The back legs can be of 2 in. or $2\frac{1}{2}$ in. thickness, tapered slightly towards the top as a matter of finish. Where a stuffing rail is fitted above the front seat rails, its height from 1 in. upwards

must be governed by any particular upholstered effect desired for the finished chair, but in a plain manner (as Fig. 1) may be omitted and the front rail itself be stuffed over sufficiently to avoid any appearance of flatness that would otherwise result on face.

The frame, being ready for upholstering, should be turned upside down upon a trestle or other table for the next operation, which consists of putting on the webbing; and, as the strands must be quite taut to prevent sagging, it will be advisable to use an upholsterer's strainer for this. Such a tool may be made from a piece of beech, sycamore, ash, or other hardwood planed up smooth and true. The back end of the webbing is tacked down with $\frac{3}{4}$ in. large headed webbing tacks, then folded over and again tacked to the frame. The slack end of the webbing is next folded and threaded through the mortise hole of the strainer and the cross bar inserted into this loop. The remainder of the webbing folds around the rebate and comes up underneath the

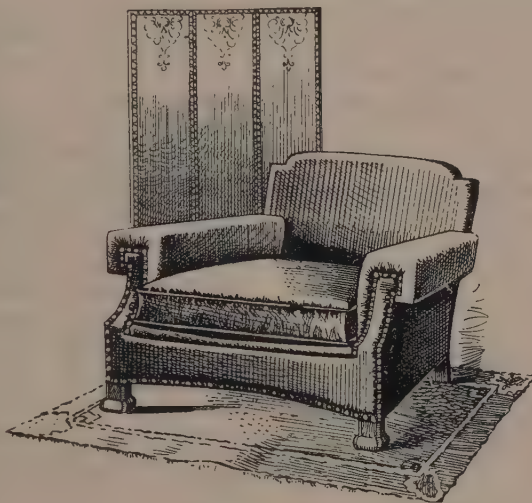


FIG. 1.—THE IDEAL DIVAN EASY CHAIR FOR LOUNGE OR LIVING ROOM.

worker's hand. The webbing strainer is next strained forward until sufficient tension is obtained for the tacking down of the remaining end. (Details for the construction of such a strainer were given in May, 1926, Volume XXX.). The webbs must be interlaced over and under alternately as the work proceeds. The springs are tied to the webbing by three or four double twine stitches over the bottom coil, and are also tied down about 2 in. of their height and all lashed together. The springs are afterwards covered with hessian tacked to the rail and then strained over for finally tacking down. See that the tops of the springs are kept about level and upright when sewing to the hessian.

A first stuffing of alva, fibre, or flock over this is secured by twine stitches forming bridles or loops which will be tied off. Any unevenness of the stuffing can be worked level with the regulator, and if flock is used and found too lumpy a little fibre inserted under it will impart a certain springiness. Next cover with scrym, the edges of which will be doubled for tacking to rails.

A nicely rounded and firm foundation for the top stuffing is obtained by stitching the seat, and it is preferable to use long horsehair for this stuffing. Wool and a sprinkling of hair is often substituted for all hair and over this a layer of wadding. Next cover with canvas or unbleached calico, ready for the final covering.

The Covering.

As represented in Fig. 1, the chair in the popular manner would be covered in hide, which is at its best for effect when associated with oak, and the surface is often sprayed to give it something of the effect of relief of the "rubbed" treatment of wood and the surface afterwards polished. This should be done where existing furniture in the room is of the antique type. Cushions are frequently covered with velour, and the old gold or bronze colour in this material blends artistically with the colour of the hide. The cushion is stuffed with either down or kapock where horsehair is not desired. To give it a firmer bed the chair seat is generally finished as a shallow well and covered with black or brown material which also contributes to some extent to a lessening of total cost.

Substitutes for hide may be found in both rexine and pegamoid, which are made in capital imitation of the real leather, and in the best qualities assure a lengthy wear under fair conditions.

Where the chair is intended for use in a drawing room, the best choice for material would lie between silk tapestry and damask, which can be obtained 50 in. wide. Repp is a material that is much used, and in a good quality wears very satisfactorily. Moquette also affords a lasting wear and is made in many small but neat designs and colourings, and is amongst the best materials for every day wear. Where the softer covering is used the difficulty of spacing the brass nails equally may be avoided by the use of cord or gimp as a binder when finally

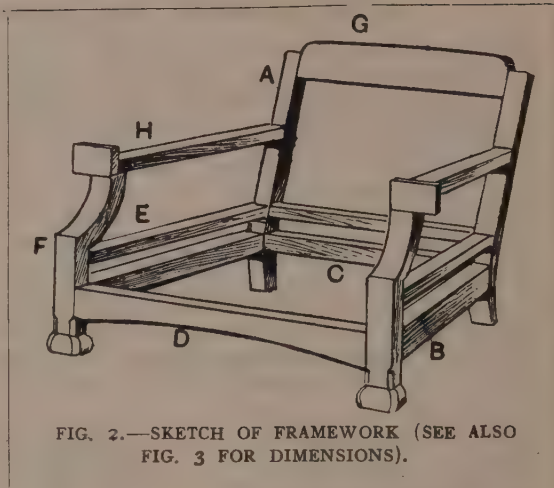


FIG. 2.—SKETCH OF FRAMEWORK (SEE ALSO FIG. 3 FOR DIMENSIONS).

tacking down; on rexine or other leather substitutes braiding and studs should be used, preferably self coloured. But, undoubtedly the round-headed nails are best for use as a contribution towards heightened effect. Failing the practised eye an even spacing can be obtained by the use of a compass set to the distance required so that the holes of entry can be pricked off immediately before the nails are entered.

Greater comfort is, of course, obtainable if the arms are sprung, whilst in a luxury chair the seat edge would be sprung also. In springing the arm the rails after being rasped up will be webbed inside and then covered with hessian to be tacked to rails and sewn to webbing. The springs rest upon the arm rail and have the bottom coil passed under a length of webbing, spacing them equally and tacking down so as to grip the coil.

They will then be double lashed down and over tops so that they are held vertically whilst being compressed about a fifth of their height. Next cover with hessian, turn in and tack down. Put in the bridles or tying loops and tack down the scrym ready for the first stuffing. Pack this up full to shape, easing with the hand as the work proceeds and tack down the scrym after tying. There will probably be a little lumpiness here and there, and this must be worked away with the regulator. Put in the second stuffing and cover with calico.

A similar process will be necessary for the seat edge if required to be sprung, in which case the arch under edge of front seat rail can be omitted. Four 8 in. springs should answer for this purpose. All springs must be well lashed to counteract side play, and the tops of edge springs are usually secured by means of an oblong wire frame. Where springs are near each other they may be prevented from grating together by the insertion of a piece of rag or stuffing between. The springs should always have a good seating when fixed on rails, and where these do not appear

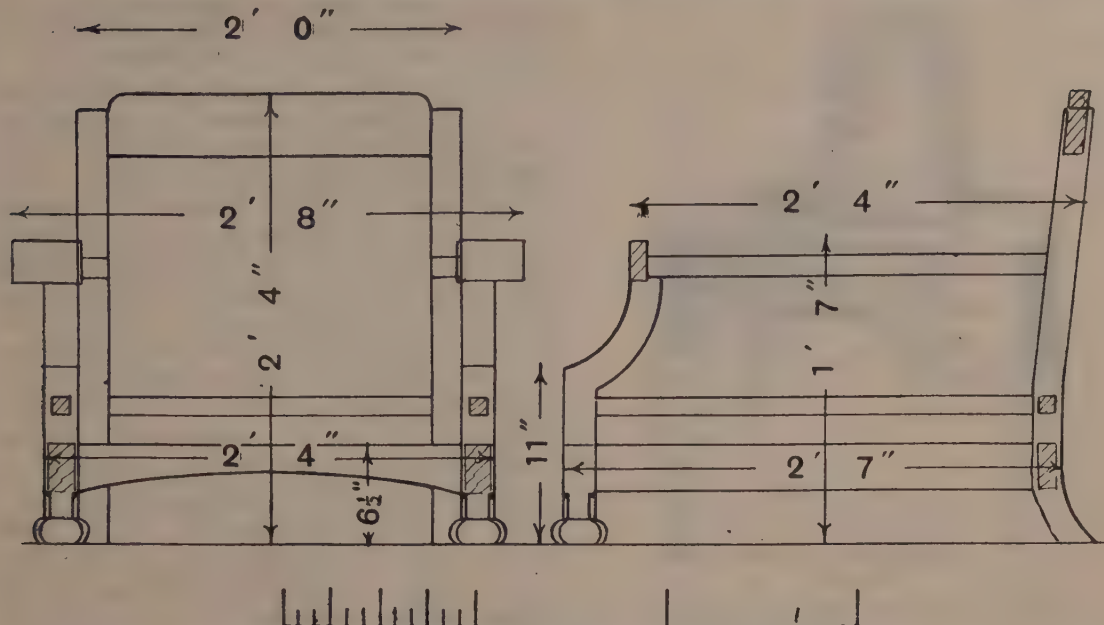


FIG. 3.—FRONT AND SIDE ELEVATIONS WITH PRINCIPAL SIZES AND SCALE.

to be wide enough for the size of springs to be used the rail can be built up with additional pieces as necessary.

The foregoing will be of assistance as a method of procedure where the worker has already tried his hand at a little upholstery, whether new or repairing work. Those who require a more detailed guidance are recommended to obtain *The Woodworker Handbook*, "Practical Upholstery" (13/6 net), which will be found extremely helpful

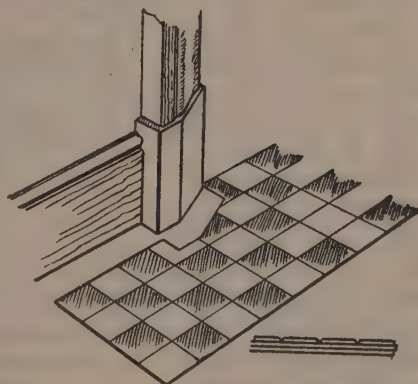
in this respect, full description being given of the various processes, some of which are specially illustrated in order to make an obscure point clear.

Stuffing materials are obtainable from Messrs. Tubbs and Farey, of Goodge Street, Tottenham Court Road, London, W.1, whilst it is also possible at times to obtain from a good class furnishing draper remnants of material suitable for covering a chair at a much lessened price. (268)

LAYING PARQUET FLOORING.—Some months ago I laid some parquet flooring in my house, and it has proved so satisfactory that I thought the method adopted would be of interest to other readers. Parquet flooring in an ordinary house, where the surface is not prepared, is a difficult job for the novice, so instead of using small squares of wood I used sheets of 3 m.m. plywood, 36 in. long, and of such widths as would fit around the door posts and up to the skirting boards. Having cut my sheets to fit, I marked off the squares for the desired pattern and took up the plywood. The sheets were then laid on the bench and I cut through the first layer of ply to divide the squares and to prevent the stain running. I then glasspapered the surface and stained every alternate square with wood dye. When dry a wax polish was applied and, after frictioning the plywood, the sheets were relaid and pinned round their edges every six inches or so. The polish on this floor is now superb and the sheets lie quite flat. I might say that the job is such a success that we do not intend to buy any more

linoleum for carpet surrounds. The underfelt allows the carpet to lie level and there is little if any undue wear at the edges of the parquet.—CHAS. S. GARDNER (Lordship Lane, N.17). (204)

A READER'S
METHOD
OF LAYING
A PARQUET
FLOOR.
SKETCH
SHOWS
PART OF
FLOOR AT
DOOR.



QUEEN ANNE DRESSING TABLE



FIG. 1.—QUEEN ANNE DRESSING TABLE,
3 FT. 6 IN.

FIG. 1 shows a handy dressing table designed to harmonise with either walnut or mahogany furniture, preferably the former. The general outline is reminiscent of the Queen Anne type of knee-hole writing table which found favour in the 18th Century. It is, however, quite suited to modern requirements.

The mirror is separate and is optional, and the article might, if desired, be made with a leather top as a writing table. By the use of standard pattern cabriole legs the reader has only the plain, straight-forward constructional work to carry out. Fig 2 gives the main sizes and Fig. 4 the construction.

Prepare the legs first. These, when obtained ready made have usually the upper square roughly finished from the saw and require to be trued up. If the ear pieces are not fixed, do not add them until after the joints have been cut. This simplifies the cutting of the mortises and prevents the possibility of their being knocked off. Mark out and cut the joints,

placing a saddle under the legs so that they have definite support. Both the ends and the back are solid and have wide tenons running across as in Fig. 4.

To ensure accuracy in marking the rails cramp all of them together, including the small bottom rails, and square the marks across the whole. The back, too, should be marked from the rails. The top drawer division and the upper joints of the lower uprights are tenoned. It is advisable to allow the tenons to run right through and wedge them. Notice that the short bottom rails are dovetailed at their inner ends. Before glueing up the ends should have rebates worked at their lower edges to take the runners. The rails are all grooved for dustboards. Grooves are also worked at the back edges of the lower uprights to take the tongues by which the inner ends are secured.

Glue up the ends first independently and put them aside for the glue to set. Assistance is advisable when putting together the rest of the job. The back should be cramped in first, followed by the middle front rail. The upper division and top rail come next and the lower pieces lastly. Test for squareness in both plan and elevation. When the glue has set runners, dustboards, and apron piece can be added. The latter should be in three pieces joined together with a tongued joint. The latter can run conveniently to the pointed part of the shape. The drawers are dovetailed together in the usual way and flat half-round mouldings are mitred round the fronts.

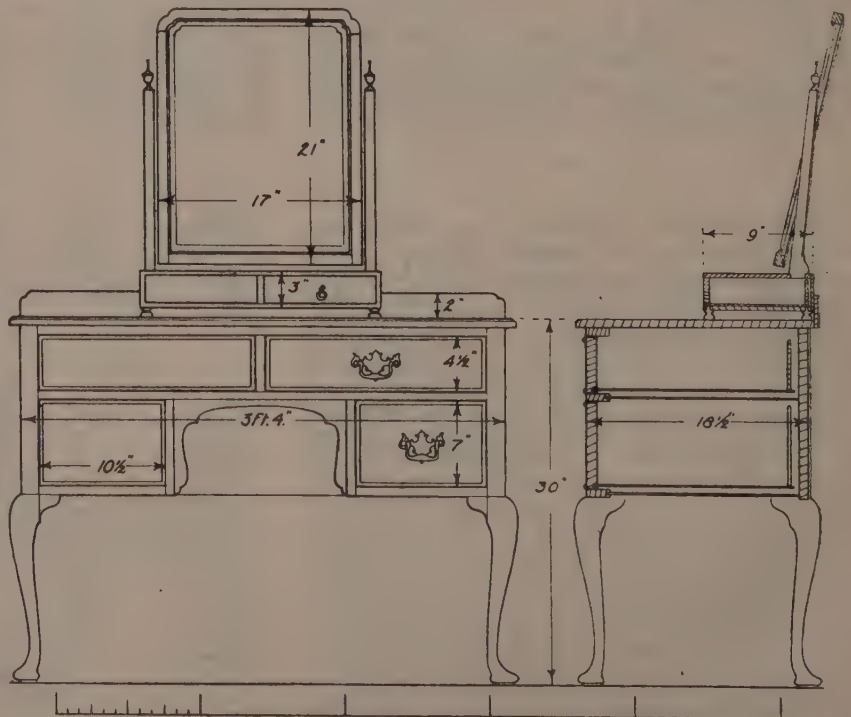


FIG. 2.—FRONT AND END VIEWS, WITH SCALE AND SIZES.

THE MIRROR base takes the form of a sort of box joined together with lapped joints. Mortises are cut right through at the top to hold the posts. Note that the shoulders of the last named are

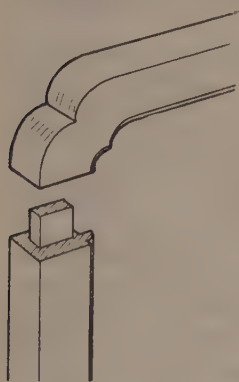


FIG. 3.—TOP JOINT OF MIRROR FRAME.

cut at an angle so that they slope backwards. As the drawers are shallow the bottoms should be rebated in and finished flush. This necessitates a square member being worked below the dovetails to hide the rebate which runs right through the front.

The frame is rebated to hold the mirror and has a thumb moulding at the front. The lower joints are straightforward. Fig. 3 shows how those at the top are dealt with.

CUTTING LIST:—

		Long. ft. ins.	Wide. ft. ins.	Thick. ins.
4 Cabriole legs	...	2 5½	0 1½ (at sq'res)	2½
1 Back	...	3 4	1 2	2½
2 Ends	...	1 6	1 2	2½
2 Rails	...	3 4	0 2½	2½
2 Rails	...	1 0½	0 2½	2½
2 Uprights	...	0 8½	0 2½	2½
1 Division	...	0 6½	0 2½	2½
2 Inner ends	...	1 4½	0 8	2½
6 Runners	...	1 4½	0 2	2½
1 Runner	...	1 4½	0 3	2½
2 Dustboards	...	1 5	1 4	1½
2 Dustboards	...	0 9	1 4	1½
1 Top	...	3 6½	1 7½	2½
1 Edging	...	3 6	0 3	2½
2 Drawer fronts	...	1 6½	0 4½	1
2 Drawer fronts	...	0 10½	0 7½	1
Sides and backs of ¾ in.; bottoms of plywood.				
2 Mirror sides	...	0 9½	0 3	2½
1 Top	...	1 8½	0 9½	2½
1 Bottom	...	1 8½	0 9½	2½
1 Back	...	1 8	0 3 plywood.	2½
1 Upright	...	0 3	0 3	2½
2 Fronts	...	0 9½	0 2½	2½
4 Sides	...	0 9	0 2½	1½
2 Backs	...	0 9½	0 2½	1½
2 Bottoms	...	0 9½	0 9	2½
2 Posts	...	1 4	0 1 (square)	2½
2 Stiles	...	1 9	0 1½	1
1 Rail	...	1 5	0 1½	1
1 Rail	...	1 5½	0 2½	1
2 Backs	...	1 9	1 7 plywood	2½

Allow for trimming. Thicknesses are net. (198)

REMEMBER that we shall be pleased to post a specimen copy of THE WOODWORKER to any of your friends, likely to be interested, if you will send their names and addresses to Evans Bros., Ltd., Montague House, Russell Square, W.C.1.

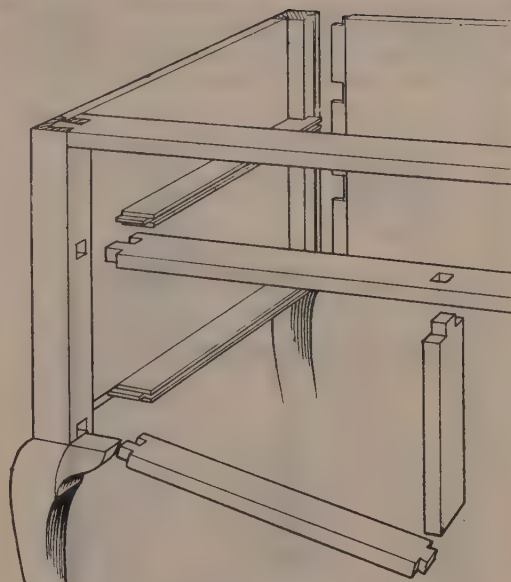


FIG. 4.—CONSTRUCTION OF CARCASE.

Draw-Extension Dining Table

(Continued from page 103).

There are three alternative ways of finishing this table: either the blue oak finish, which was described in THE WOODWORKER for October last, the nut-brown Jacobean finish, or the natural colour wax finish. The latter perhaps has the more modern appeal to anyone who intends making this entire living room suite.

CUTTING LIST:—

		Long. ft. ins.	Wide. ins.	Thick. ins.
A 4 Legs	...	2 4	2½	2½
B 4 Slide runners	...	0 7	1½	1½
C 2 Stretchers	...	3 4	1½	1½
D 4 Rails	...	2 4½	4	1½
E 7 for top frames	...	2 9	3	1
F 2 " " "	...	3 0	3	1
G 4 " " "	...	1 0	3	1
H 2 for fixed frames	...	1 0	5½	1
I 2 " " "	...	2 3	2½	1
J 2 Slide bearers	...	1 0	4	1
K 4 Sliders	...	2 7	2½	1
L 2 Panels	...	2 7	14½	1½
M 2 " " "	...	2 7	7	1½
N 2 Finger pulls	...	1 9	1	1
O 2 Fillets	...	2 7	1½	2½

All sizes are strictly net and allowance must be made for planing, etc. As a guide to timber, items A, D, E, F, G, L and M might be of quartered oak, C, H, I, N and O of straight-grained plain oak; while B, J and K might be of mild birch. (201)

LIVING ROOM BUFFET

THE service needs of the home circle of limited proportions may often be well met by a quite small cupboard space, and where the room is itself small such compactness in the more

important items of furniture will be the more readily appreciated. In such a case the buffet illustrated here may claim fair consideration. It can be provided with either one or two shelves, whilst the drawers above will be found handy for napery and cutlery.

WOOD.—The design would be suitable for carrying out in any one of the prime hardwoods, oak, walnut, or mahogany. In oak the wood might be finished to its natural colour with merely a rubber of polish passed over the surface sufficiently to seal the grain, this being a face treatment which is often given at present day. Others will prefer the darker and richer nut brown colour with either a full or eggshell finish, which has the greater impress of homeliness.

In walnut the finish may be by french polishing, or, as is often preferred, the surface may be waxed. In mahogany the wood may be finished more to the natural colour, whilst in the darker shades of treatment it might be toned down to a medium plum shade with a full polished finish. If plywood is used for the doors, it might be noted that many sundriesmen will procure (if they do not stock) boards faced with figured primewood, this being neatly matched up in the laying to obtain a balanced grain effect, or it may be obtained either quartered or in some cases rayonnated to meet special needs. In the present case reliance is placed upon the fretwork or metal mounts for a heightened effect, this having its best opportunity for embellishment on a plain and all flush surface.

CONSTRUCTION.—Taking the parts in order of lettered reference (Fig. 4), the posts (A) with

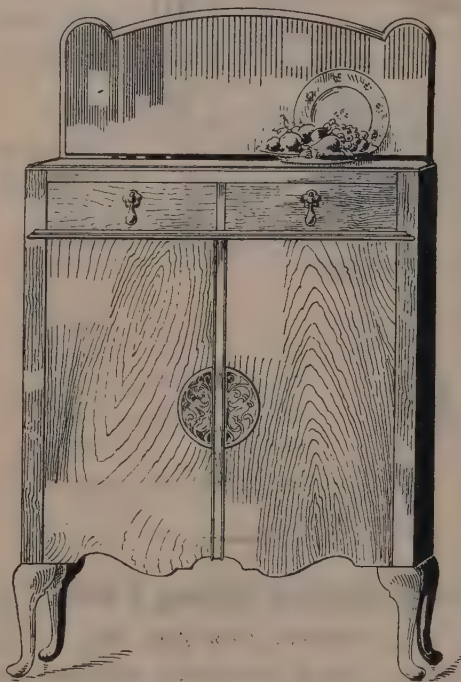


FIG. 1.—LIGHT BUFFET, 2 FT. 6 INS. WIDE.

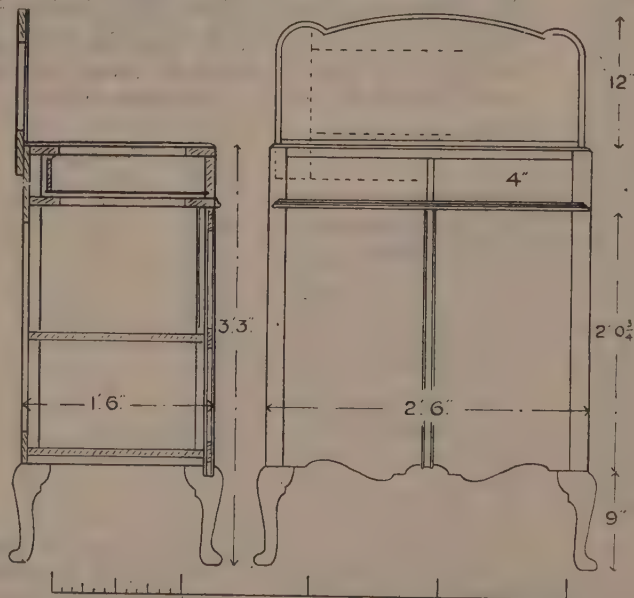
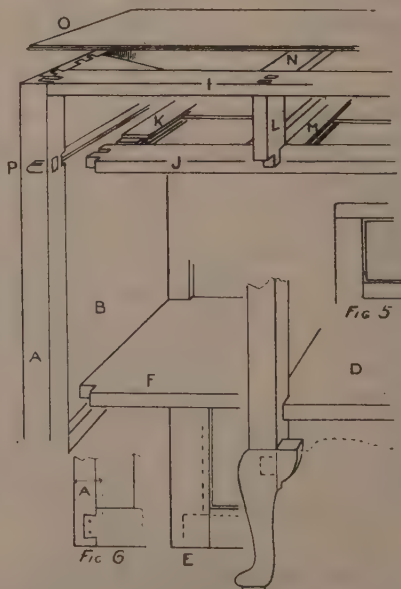


FIG. 2.—SECTION.

FIG. 3.—FRONT ELEVATION.



FIGS. 4, 5, 6.—METHOD OF CONSTRUCTION.

their cabriole legs will finish to the dimensions given in cutting list. The part will require slotting for dovetails above and mortising for ends and bottom to enter. Ready-cut posts in oak, with cabriole legs are obtainable from all dealers in woodwork sundries.

THE SIDES (B), with the grain running vertically, are intended to finish flush on face with the legs, and will be housed into them with a fillet glued neatly into the angle behind. The parts will also be grooved or mortised to receive the carcass bottom, its bottom edge finishing in line straight with the top of cabriole legs.

THE CARCASE BOTTOM (D) will be masked by the doors when closed, and for this reason is set back to the extent of the door thickness, the part being cut with a tenon to enter legs, in addition to a series of tenons which will be notched into the carcass ends. The whole job may be further stiffened if the top and bottom rails of the carcass back are dovetailed and screwed to the back posts as indicated in Fig. 6.

THE CARCASE BACK (E) is intended to have a couple of panels and will therefore be made up of three stiles and two rails, to be mortised and tenoned together with the panels grooved in. The part is rebated and screwed into position to the uprights and also to top and bottom. The inner shelf or shelves (F) may rest on fillets $1\frac{1}{2}$ in. by $\frac{3}{4}$ in. screwed to ends.

THE DOORS (G) may be made of plywood up to $\frac{3}{4}$ in. thickness with the bottom edge shaped to the line in Fig. 8. This method gives a somewhat substantial door which might require three instead of the usual two brass butt hinges.

An alternative method of constructing a door of this kind is to make it up on a frame with prime-wood faced ply front, and a plywood back. A 5 mm. thickness might be used for this purpose, the front being sufficiently long to enable its lower shaped outline to be cut. The back of frame will be covered in flush with plywood of equal thickness with the front, but without an allowance for any shaping to be cut here, *i.e.*, the inner plywood facing will finish flush with bottom edge of door frame. In this manner the frame for the door will be made up of two stiles and three rails to be mortised and tenoned together (Fig. 7).

If pierced metal lock plates are used for the door a neat finished effect can be achieved by mounting a couple of lengths of $\frac{1}{2}$ in. bead on doors, each length being set in $\frac{1}{4}$ in. from meeting edges to extend the full height of the doors and be both glued and panel pinned on.

On either side of these beads an oxydized nickelled or lacquered lock plate should be mounted, a selection of designs being now-a-days usually stocked by good class metal furnishers..

Alternatively, and also in present-day manner, the part might be fretcut in $\frac{1}{16}$ in. saw-cut veneer, two or more layers being nailed together and one half of the circular design mounted thereon. The whole can thus be cut at one operation and separated afterwards, the halves being



FIG. 7.—METHOD OF MAKING DOORS.

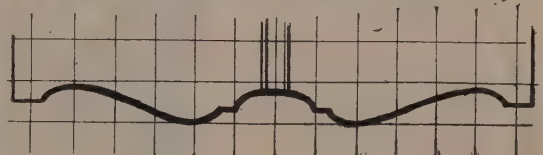


FIG. 8.—SHAPING AT FOOT OF DOORS IN 2 IN. SQUARES.

reversed as indicated in Fig. 1. They are glued and panel-pinned into position, and when dry are rubbed down with glasspaper till they stand in very low relief, when they are ready for the final polishing. (See full size design, Fig. 9).

THE TOP RAIL (I), in addition to being dovetailed into position in ends, will require mortising to receive the divisions between drawers. They may also be either grooved or slotted to receive a central stretcher above N. The corresponding back rail should be set in from back edge of ends to the extent of the thickness of the carcass back. The drawer rails (J) front and back will be of equal width with the top rails and, in addition, are grooved to receive a plywood dustboard, the latter being pushed home from the back.

The upright division (L) enters the top rail with a couple of tenons which should be wedged, but only one tenon is necessary into the rail below, the joint being cut right through and wedged as before. The continuation piece extends to the back, into which it can be notched or screwed in addition to being screwed through the runner. The central runner (M) may be of a width to project about $1\frac{1}{2}$ in. beyond the division on either side, and this will also be grooved on each edge.

The drawer case generally will be stiffened by

fitting the stretcher rail (N) between front and back rails at top and in centre. The part will also serve a useful purpose for the thin top to bed upon.

THIS TOP (O) is indicated as finished with a receding mould and might be of $\frac{3}{8}$ in. or $\frac{1}{2}$ in. thickness as preferred; or it might be finished with a square edge to finish flush with the casing which it completes, the upper edge of front and ends being very slightly eased from squareness

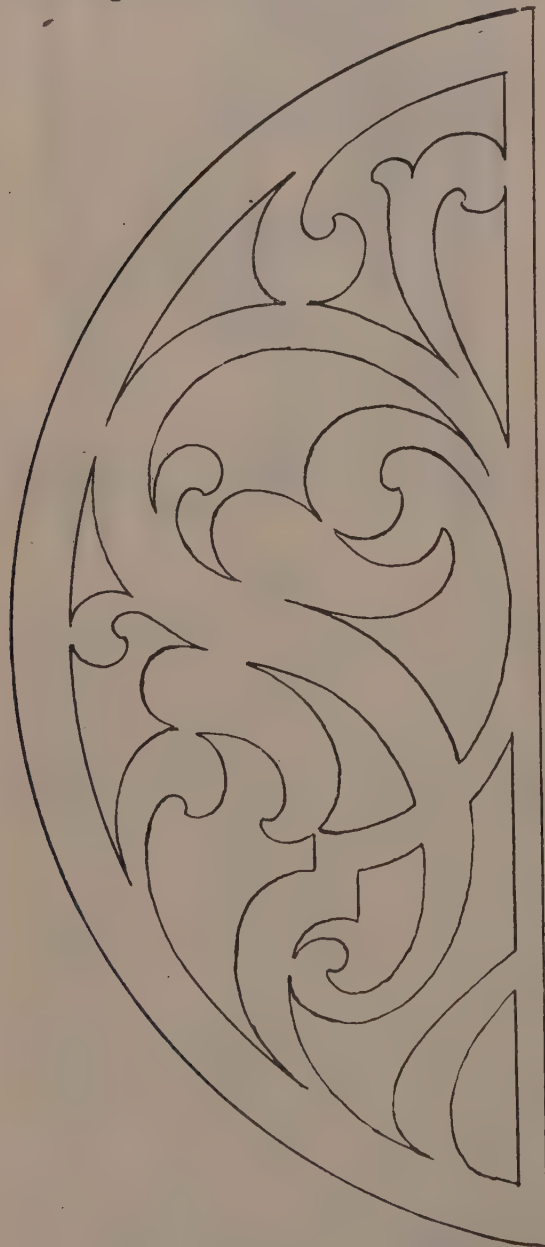


FIG. 9.—FULL SIZE DETAIL OF FRET.

when completing. Another method would be to fit a solid $\frac{3}{4}$ in. top (as at Fig. 5), flush with posts and with the upper edges rounded.

THE FACE MOULDING (P) is planted on the drawer rail, being returned on itself at the ends. The bottom member should finish neatly flush with the outer angle of posts.

The cabriole termination of the posts to be used is indicated as of a height of about 9 ins. net. From the sundriesman, however, it may happen that a stock leg varies slightly over or under this height, a point which is borne in mind in fixing the present (approximate) height of carcass from ground to top of drawer case.

The cabriole leg is extended by wing pieces in the usual manner, these projecting about $1\frac{1}{2}$ ins. or slightly more inwards according to the fullness of shape and using $1\frac{1}{2}$ in. thickness for the part to be tenoned or dowelled into position.

THE FRAMELESS MIRROR above will require a size of 2 ft. 5 ins. in length by 12 ins. full in height. It would finish with a $\frac{3}{4}$ in. bevel, for the sake of improved appearance, although the bevelled edge is frequently omitted in cheaper work. This mirror will bed upon a back frame of $\frac{3}{4}$ in. thickness, the uprights of which may be $2\frac{1}{2}$ ins. to 3 ins. wide, the top rail to include the shaping being allowed a full 3 ins. wide and the bottom rail 4 ins. wide, which will give a screwing sufficient to keep the whole thing stiff. This frame will be mortised and tenoned together, or may be bridle jointed and screwed, and can be panelled with plywood, mirror and frame being connected by means of nickelled clips which can be purchased from the glass factor.

CUTTING LIST:—

	Long. ft. ins.	Wide. ins.	Thick. ins.
A Four legs	3 3	$1\frac{1}{2}$	$1\frac{1}{2}$
B Two sides	2 6	16	$\frac{1}{2}$ or $\frac{3}{4}$
D Bottom (to fit)	2 6	17	$\frac{1}{2}$ or $\frac{3}{4}$
E Three back stiles	2 6	3	$\frac{3}{4}$
One rail	2 6	7	$\frac{3}{4}$
One rail	2 6	3	$\frac{3}{4}$
Two panels $\frac{3}{4}$ in. or 5 mm. plywood (to fit).			
F Shelf (to fit)	2 6	17	$\frac{3}{4}$ or $\frac{1}{2}$
G Doors (if framed)			
Four stiles (to fit)	2 2	$1\frac{1}{2}$	$\frac{1}{2}$
Six rails (to fit)	1 2	$1\frac{1}{2}$	$\frac{1}{2}$
Two facings (shaped to fit), 5 mm. plywood.			
Two plywood backings (to fit).			
I Two top rails	2 6	3	$\frac{1}{2}$ or $\frac{3}{4}$
J Two drawer rails	2 6	3	$\frac{1}{2}$ or $\frac{3}{4}$
K Two runners	1 2	2	$\frac{1}{2}$ or $\frac{3}{4}$
L Division	0 6	3	$\frac{1}{2}$ or $\frac{3}{4}$
Continuation piece	1 4	1	$\frac{1}{2}$ or $\frac{3}{4}$
M Runner	1 2	4	$\frac{1}{2}$ or $\frac{3}{4}$
N Stretcher	1 2	3	$\frac{1}{2}$ or $\frac{3}{4}$
O Top (to fit)	2 6	18	$\frac{3}{4}$ or $\frac{1}{2}$
Two drawer fronts	1 2	$4\frac{1}{2}$	$\frac{1}{2}$
Sides and backs, $\frac{3}{4}$ in.; bottoms, $\frac{1}{2}$ in. or ply.			
P Mould	2 6	$\frac{1}{2}$ section.	

Lengths are full to include jointing and finishing. Widths and thicknesses are net except where noted to fit.

THE WOODWORKER

VOLUME XXXIV.

MAY, 1930.

NO. 438

AN IDEAL CABINET WARDROBE

WITH HANGING SPACE, MILLINERY CUPBOARD, DRAWERS AND TRAYS

AT a time when much ingenuity is expended in contriving a piece of furniture that will suit the needs of the average man, some help may be derived from an arrangement such as that dealt with in the present article. The upper part of this convenient and imposing wardrobe is fitted with a series of neat shelves for underwear, a set of drawers for collars, ties, socks, handkerchiefs, etc., whilst below hanging space for an ample supply of clothes is included. A centre cupboard is fitted with light sliding trays, and the whole is mounted on squat legs to facilitate sweeping underneath.

The wardrobe is suitable for carrying out in a plain neat manner in oak, relying entirely on a pick of grain for attractive relief. It is, however, possible to introduce a little embossed relief in an effective manner, whilst alternatively some attraction could be added by the introduction of a small but pleasing device in the doors. Suitable detail is readily procurable from the sundriesman.

With regard to finish, the natural colour of the wood (or a shade darker) might be preserved in the course of polishing as present-day taste goes, although many prefer the darker and perhaps more homely nut-brown colouring in the Jacobean manner. Grain effects will perhaps be more easily obtained by the use of walnut or mahogany, whilst birch, if used, has a run of grain that will assure a good imitation of antique oak when properly coloured down. Dimensions are 5 ft. 3 in. high, 18 in. deep on carcase, and 4 ft. 3 in. wide over all.

THE SIDES (A, Figs. 3 and 4) will finish $\frac{7}{8}$ in. thick, both top and bottom being dovetailed into position. The bottom (D) can be solid as shown, or can be a frame mortised and tenoned together and grooved on the inner sides for the reception of a centre stretcher which will come immediately under the upper division.

Above this frame two pieces (E), forming the bottom of each cupboard, would be required, these being fitted so that they allow the door to bed home flush on them.

THE CENTRE DIVISION (F) shown solid, again may be made up of a piece 3 in. wide tenoned into position top and bottom and a continuation piece itself screwed through from under stretcher.

The framing formed with the drawer bearer rail consists of two end pieces and the front rail, to be tongued together and also grooved into carcase ends, the inner edges of the pieces being grooved for $\frac{3}{8}$ in. bottoms to be pushed home from the back and a back rail tongued on. Each division between drawers (I) is formed of a piece 3 in. wide to enter bottom (D) above the rail (G) below with a single dovetail, to be completed to back with the usual continuation

piece which may be either the same width as the divisions or formed of slips $1\frac{1}{8}$ in. by $\frac{7}{8}$ in. tongued to I and screwed from below.

The stretchers under divisions will project sufficiently to form runners each side for the drawers. The lower and inner divisions (K), forming part of the narrow centre cupboard, will be tenoned into position top and bottom. They may be solid, or formed of rails or uprights 3 in. wide with a continuation piece of equal thickness



FIG 1.—THE MODERN CABINET WARDROBE.
WIDTH, 4 FT. 3 INS. HEIGHT, 5 FT. 3 INS.

tongued and glued up. Alternatively they could be formed by separate frames faced on each side with plywood.

If the divisions are solid, slips can be fitted thereto of sufficient width to enable the trays (K) to travel forward clear of the door edge when the latter is opened. The trays would be of $\frac{3}{8}$ in. or 7 mm. plywood bottoms, with lippings mitre-halved or dovetailed together at angles and screwed through bottoms from below. If plywood linings are fitted to framed divisions it would be preferable to fit loose shelves on glued fillets instead of sliding trays, or the trays might be made to slide upon separate light frames glued and screwed to the plywood. The outer spaces for hanging will be fitted with sliding hangers to take shoulders so that the whole may pull forward.

THE UPPER DOORS (N) should be of $\frac{3}{4}$ thickness, or they might be of thicker plywood, preferably with lengths of $\frac{1}{8}$ in. flat mitred round. Or, in a simple manner, the $\frac{1}{8}$ in. bead effect might be carried out in the manner indicated, the small moulded panel shown being suitable for the mounting of a nickelled or other appropriate lock plate and handle.

The drawer fronts should not be put in hand till the cases for them are ready on a trial fit up, and they should be fitted glove tight without play. One of the signs of a well fitted drawer in a set is that it will blow others out of line when it is closed sharply.

These drawers will be dovetailed together in the usual manner with the bottoms grooved in,

and should be fitted with handles of selected design and good quality, the mounts having a bolt to pass through the door and be secured by nuts on the inside. The fronts may be finished plain or with a mitred flat rebated in all round to form a cocked bead effect. The finish of metal work, if of brass, may be either of the old satin or antique colour for oak, whilst for mahogany many prefer them oxydised with a rubbed finish.

Any divisions that it may be desired to fit to the drawers for the reception of the various smaller items of toilet can be of $\frac{1}{4}$ in. stuff or 5 mm. plywood V-grooved into position and to each other.

THE LOWER DOORS (N) should finish $\frac{3}{4}$ in. thick in the solid and may be clamped top and bottom with 3 in. clamps, tongued on, using cross-cut hardwood tongues. If mitred-clamped, we have an improved effect. If preferred, the door may be flush-panelled on face, being framed up of stiles and rails 2 in. wide with the panel grooved in. Another method for the flush door is to make up a frame of $\frac{3}{8}$ in. by 2 in. stiles and rails, with an inner stile and rail halved together to cross in centre and be stubbed into position in the framing, all joints being pegged after glueing. The front could be faced with 5 mm. plywood and the back also faced with 3 mm. or 5 mm. plywood. The door may be surrounded by a $\frac{1}{8}$ in. flat, in addition to which a certain neat result may be achieved by mounting a length of embossed detail in the manner indicated in Fig. 1. A plain drop handle with lock and key may be fitted, or the handle itself may be omitted, the key serving for handhold.

THE CENTRE DOOR (O) is allowed a net space of 12 in. wide, and might well be framed up of $1\frac{1}{2}$ in. stiles and rails mortised and tenoned together, the framing being finished with a $\frac{1}{4}$ in. ovolo mould round panel opening, either dropped in or worked in the solid. If the end doors are of figured grain the centre panel (P) might be of straight vertical grain to effect a contrast.

THE BASE (Q) when completed, should show a height of 6 ins. net, and its projection beyond the ends of carcass should be kept as slight as possible. The legs required will have the rails (R and S) dovetailed into them as shown in Fig. 4, the angles being stiffened by braces screwed on in a similar manner to those on a dining-room chair. A centre stretcher (T) is dovetailed into front and back rails as a stiffening, or the rail may be housed into position and secured by glue-blocks on either side.

The stool will be capped by a mitred and moulded frame (U), screwed into position.

A similarly moulded finish is given to top (V, Fig. 3), but in this instance it is constructed of a built-up section as indicated, the rounded detail being lined up to form a rebate. The section will be glued and nailed or screwed in position to form a top frame, and upon this the lap will bed. Plywood is generally used for such a top, but, with a view to the possibility of its having to carry some weight occasionally, a top about $\frac{1}{2}$ in. thick is shown.

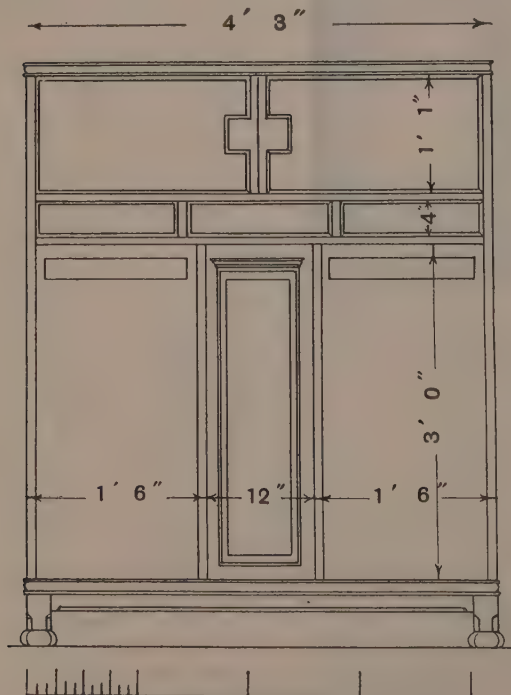


FIG. 2.—SCALE ELEVATION WITH SIZES.

The Cutting List is as follows:—

	Long. ft.	Wide. ins.	Thick. ins.
A Two sides	4 9	18	$\frac{7}{8}$
B One top	4 3	18	$\frac{7}{8}$
C One bottom	4 3	18	$\frac{7}{8}$
D Upper cupboard bottom	4 3	18	$\frac{7}{8}$
E Two shelves	2 1	17	$\frac{5}{8}$
F One upper division ...	1 5	17	$\frac{7}{8}$
G Two pieces	4 3	3	$\frac{7}{8}$
Two runners	1 3	2	$\frac{7}{8}$
H Two centre runners ...	1 3	3 $\frac{1}{2}$	$\frac{7}{8}$
I Two drawer divisions	0 6	3	$\frac{7}{8}$
Two continuation pieces	1 4	5	$\frac{7}{8}$
J Three bottoms	1 3	14	$\frac{5}{8}$
K Two divisions	3 2	18	$\frac{7}{8}$ or $\frac{3}{4}$
L Two upper doors	2 1	13	$\frac{7}{8}$
M Three drawer fronts ...	1 5	4	$\frac{7}{8}$
Six sides	1 4	4	$\frac{3}{8}$
Three backs	1 5	4	$\frac{3}{8}$
Three bottoms of plywood to fit.			
N Two lower doors	3 1	18	$\frac{7}{8}$
Two frets (if required)	1 2	2	
O One centre door	3 1	12	$\frac{7}{8}$
Upper door bead	16 0	$\frac{1}{8}$	
Cocked bead, drawers	12 0	$\frac{3}{8}$	$\frac{1}{8}$
Centre door bead	8 0	$\frac{1}{8}$	
Capping mould	1 0	$\frac{7}{8}$	section
Panel	2 6	8	ply
Or, if framed up:			
Two stiles	3 2	1 $\frac{1}{2}$	$\frac{7}{8}$

	Long. ft.	Wide. ins.	Thick. ins.
One top rail	1 0	2 $\frac{3}{8}$	$\frac{7}{8}$
One bottom rail	1 0	1 $\frac{1}{2}$	$\frac{7}{8}$
Panel, to fit, of $\frac{3}{8}$ ins. or $\frac{5}{8}$ ins. thickness or 5 mm plywood.			
P Four trays	1 0	16	$\frac{3}{8}$ or 7 mm ply
Four back lippings ...	1 0	3	$\frac{3}{8}$
Eight side lippings ...	1 4	3	$\frac{3}{8}$
Eight fillets	1 4	1 $\frac{1}{2}$	$\frac{3}{4}$
Q Four stool legs		6	3
Four balls		4	2
R Two rails	4 3	1 $\frac{1}{2}$	2
S Two rails	1 6	1 $\frac{1}{2}$	2
T Centre stretcher	1 6	3	$\frac{3}{4}$
U Base mould	9 0	2 $\frac{1}{2}$	1 $\frac{1}{2}$
Back rail	4 3	2	1 $\frac{1}{2}$
V Top faced-up section ...	9 0	1 $\frac{1}{2}$	2
Dustboard top	4 4	19	$\frac{1}{2}$ or 5 mm ply
W Two back stiles	4 9	3	$\frac{5}{8}$
Two inner stiles	4 6	3	$\frac{5}{8}$
One top rail	4 3	3	$\frac{5}{8}$
One bottom rail	4 3	3	$\frac{5}{8}$
One mid rail	4 3	6	$\frac{5}{8}$
Six panels of plywood to fit.			

All lengths are full to allow for paring and fitting. Widths (generally) and thicknesses are net. (221)

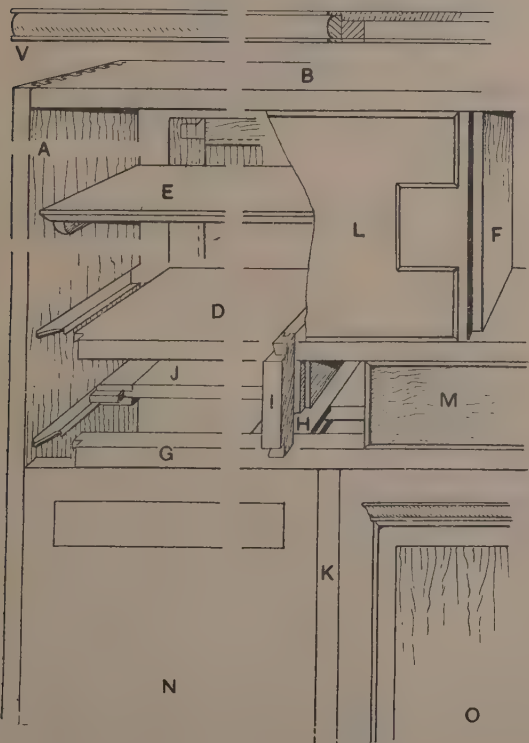


FIG. 3.—CONSTRUCTION OF UPPER PART.

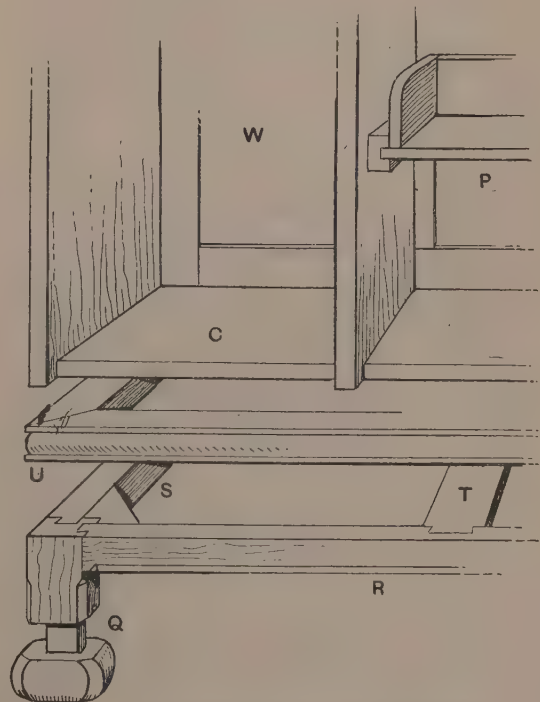


FIG. 4.—CONSTRUCTION OF LOWER PART.

CHIPS FROM THE CHISEL

THE IDEAL HOME

A TOUR round the Ideal Home Exhibition at Olympia last month showed, not only that the small house is still very much with us, but that furniture is being more and more adapted to its exigencies. A few years back it was still possible to see at the Exhibition some massive modern Georgian furniture which needed space, a mansion indeed, to show it off. This year, though the designs were, for the most part, an adaptation of these earlier modern pieces, everything tended to smallness and compactness, with a beautiful treatment of surface. There were numerous bedroom suites in figured walnut and weathered oak, and a tendency everywhere to break the severity of the straight line by the introduction of curves which, in some cases, were very graceful and effective.

* * *

I have never before seen so many different varieties of armchairs as there were this year. Fireside chairs literally of all shapes and of a good many varying sizes, adaptations of grandfather chairs, shepherdess chairs and chairs so consciously modern as to be just padded stumps with rigid circular backs; the latter added more, I should say, for the effect their severe outline gave to the room than for the comfort of the sitter. There were, however, any amount of comfortable lounge chairs, ranging from the older Chesterfield types, though these were distinctly smaller than of old, to the very newest things so cunningly designed as to give the maximum of comfort in the minimum of space. There was even a chair which rocked you gently when it first received you: not a rocking chair in the accepted sense but specially designed so that the poor nerve-harassed modern should be wooed, as it were, to stay there and rest.

* * *

One thing I thought all to the good and that was the scarcity of the sham antique, which once upon a time used to be rather prominent at this Exhibition. The self-labelled counterfeit, complete with wormholes and one or two dented copper warming-pans as the inevitable accompaniment in the background, should have no place in any self-respecting house, and so the general public seems quite sturdily and sanely to have decided. At any rate the counterfeits were conspicuously absent this year. There is always a place for the genuine antique, provided it has some claim of interest or beauty to make it worth preservation. It is associated with a real past; it brings with it a tradition, an atmosphere, a sense of touching another and remoter century which, however unconsciously, helps our own home to thrust down its roots more deeply and surely. But the kind of past which has its origin only in the fake-maker's shop is best left alone. If we prefer period furniture there are plenty of excellent models being turned out with the distinctive modern touch that adapts them to our own particular needs; if we want modern styles we have nowadays a wide range of choice.

I have been led to wonder whether the smallness of the modern house is the thing which drives people out of it, to run about the countryside in motor-cars and ravage the wild flowers. It seems a possibility, for the effect indoors is so cramping, even with small furniture; and some of the smaller armchairs I saw seemed indeed constructed more as temporary perches than as abiding places. The older houses, for all that they often have not the same labour-saving conveniences usually have plenty of space. They have often an attic, too, and one very interesting feature of the Ideal Home Exhibition was suggestions for the treatment of the attic. It is an indication of how mere floor space has increased in value in the eyes of the present generation, for time was when no one paid any attention to the attic. It was at its worst used as an old lumber room, at its best as a store room. At the Exhibition it was shown as a possible bedroom for a girl, a play room for a boy, a room to be quiet in for the student or seeker after quiet, and as combined bedroom and studio for an artist. The "quiet" room was, perhaps, the most alluring of all. The colour scheme was restful, the furnishing simple but attractive.

* * *

When one comes to think of it, what possibilities of quiet and freedom there are in an attic. The heroines of fiction knew it, though no one had bothered to make it look restful for them: it was just the old attic like Maggie Tulliver's, where "she fretted out all her ill-humours, and talked aloud to the worm-eaten floors and the worm-eaten shelves, and the dark rafters festooned with cobwebs." It was a place of refuge for her as for Prue Sarn, the delightful, hare-lipped heroine of *Precious Bane*, who said that when she was lost for something to turn to, she'd run to the attic and find it a core of sweetness in much bitter.

* * *

And what an attic that was! "The roof came down to the floor all round, and all the beams and rafters were oak, and the floor went up and down like stormy water. The apples and pears had their places according to kind all round the room. There were codlins and golden pippins, brown russets and scarlet crabs, biffins, nonpareils and queanings, big green bakers, pear-mains and redstreaks. We had a mort of pears too, for in such an old garden, always in the family, every generation will put in a few trees. We had Worcester pears and butter pears, jargonelle, bergamot and Good Christian. Just after the last gathering the attic used to be as bright as a church window, all reds and golds . . . Every one of those red cheeks used to smile at poor Prue Sarn, sitting betwixt the weaving-frame and the window, all by her lonesome." For us to discover the attic as a "quiet" room is nothing new; what is new is the treatment of it, and this is full of possibilities.

(237)

KITCHENETTE CABINET

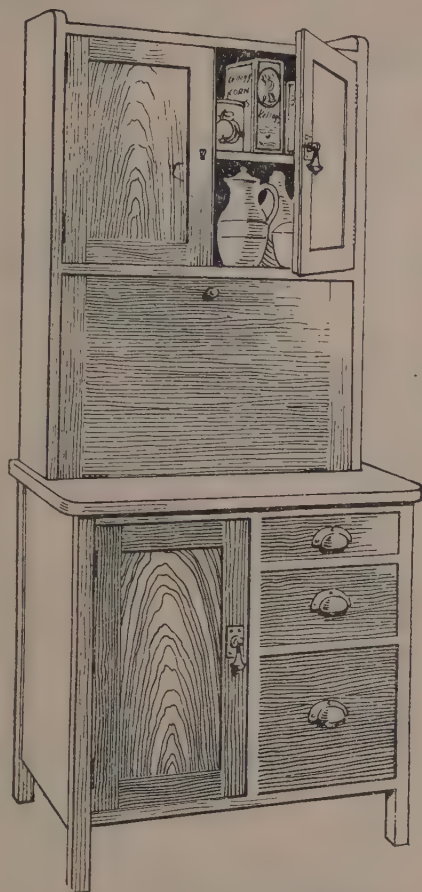


FIG. 1.—CABINET FOR THE KITCHENETTE.
WIDTH, 2 FT. 9½ IN. HEIGHT, 6 FEET.

ANOTHER excellent type of kitchen cabinet is shown here, specially designed to fill a recess in the small kitchen or living room. Over all sizes are 2 ft. 9½ ins. wide, 1 ft. 7 ins. deep and 6 ft. 0 ins. high. The upper cupboard is intended for the storage of groceries, cereals, etc., glass being used instead of wood panels if desired. Behind the fall front, which makes an ideal working table, is another cupboard in which could be stored tins holding tea, coffee, rice, etc. The top drawers would hold cutlery and linen, while the deep bottom drawer could be tin-lined to hold bread and cakes. The bottom cupboard could be used for the storage of the mixing bowl, graters, dishes, moulds, etc.

Deal, pine, whitewood and magnolia are all cheap and excellent woods for the purpose. Kauri, oregon pine, Canadian ash, beech and birch are among others which may be suggested to Colonial readers. For a better finished article the use of oak or chestnut is recommended. A glance at the cutting list will show that most

of the timber is from 1 in. stuff, finishing (when glass-papered) about 1½ in. thick. Use ½ in. thick Oregon pine or similar plywood for door panels, drawer bottoms and back.

CONSTRUCTION.—The job is made up in two separate carcasses. Taking first the top carcass, the ends (G), shelves (H) and bottom (J) should be obtainable in widths without jointing. The ends, after preparation, are dovetail-grooved across, stopping about 1 in. from front edge for the shelves; they are also rebated on the back inside edges to take the plywood back. The bottom could be rebated and screwed to the ends, or alternatively dovetailed (Fig. 6). In assembling, first knock in the shelves and then glue in and fix the bottom (J).

Turning our attention to the bottom carcass, the legs (A) are prepared from 1½ in. square stuff, finishing 1½ in. The back legs should be rebated for the back panel (Y) and grooved in pairs to receive the tongued ends (S). These ends are out of ¾ in. stuff, finishing about ¾ in. thick. It will be necessary to joint two boards to get the width and, after preparation and finishing to the net sizes given, these ends are rebated along the bottom edge to receive the bottom (L) and then tongued to the legs.

Two boards jointed will also be necessary for the bottom (L) and centre end (R). Trench across the bottom ¼ in. deep for the centre end. Mark the position and sink mortises in end (R) and the right-hand leg to take the stub-tenoned drawer rails (O). The bottom (L) should also be stub-tenoned to the front legs (Fig. 7).

To assemble, first fit and screw the centre end (R) to the trenched bottom (L). Then fit in the rails (O) and connect to the right-hand legs and end already together. Next add the left-hand gable and complete the carcass by fitting and screwing down the top rails (N). It is advisable to test the preliminary work by first assembling with dry joints. This will ensure an easy and rapid final glueing up together.

THE DOORS are mortised and tenoned together. In preparing the stiles and rails ¾ in. should be allowed on the width for fitting purposes, and a ¼ in. (by ¾ in. deep) groove run through on the inside edges for the plywood panels (Fig. 4). The meeting stiles are wider to allow for the closing bead and rebate (Fig. 5), and the tenoned joint is shown in Fig. 4. The panels are inserted when glueing up the frames.

THE DRAWERS should be dovetailed together, the sides being lap-dovetailed to the fronts and through-dovetailed to the backs. The top cutlery drawer might have a centre division fitted from front to back.

THE FALL FRONT may be in solid wood (clamped at each end) or in plywood. If solid, take the tenons through the clamp. It is hinged to the top (K), the hinge flanges being sunk into the fall and top. Fix a stop underneath the shelf (H, Fig. 2).

THE TOP (K) need not be the full width of 19 ins. A width of 12 ins. would serve, with the

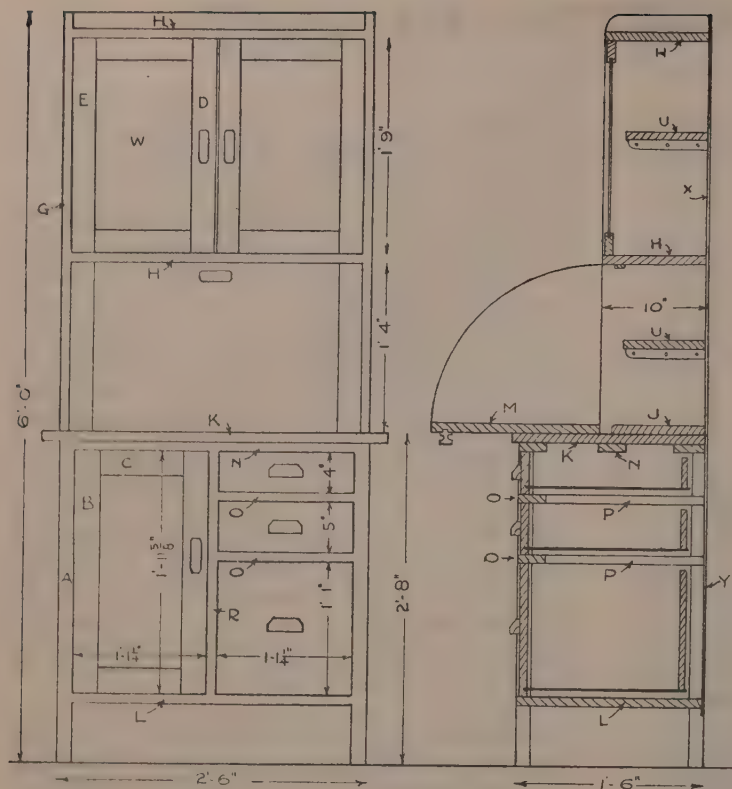


FIG. 1.

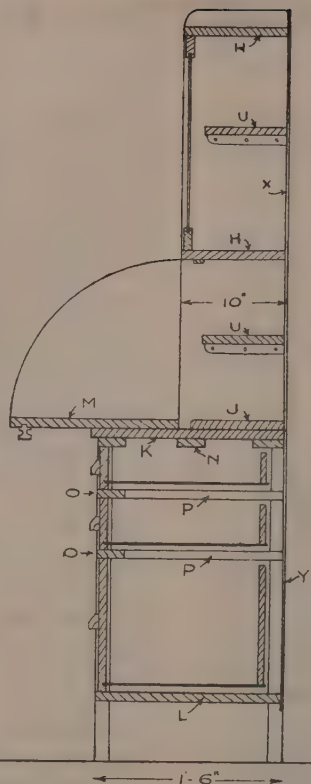


FIG. 2.

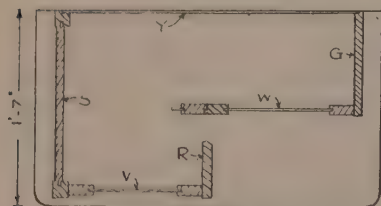


FIG. 3.

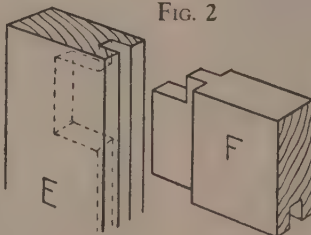


FIG. 4.



FIG. 5.

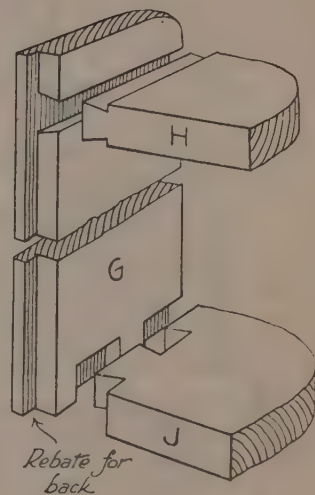


FIG. 6.

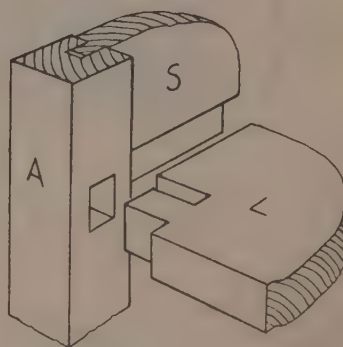


FIG. 7.

FIG. 1.—FRONT ELEVATION.

FIG. 2.—SECTIONAL END ELEVATION.

FIG. 5.—MEETING STILES OF DOORS.

FIG. 6.—DOVETAILED SHELF, ETC.

FIG. 7.—TENONED BOTTOM.

FIG. 3.—PLAN: UPPER PART AT LEFT; LOWER PART AT RIGHT.

FIG. 4.—DOOR JOINT.

horns jointed on the back edge as shown in Fig. 8). Well round the front corners and have a good overhang at the ends so that a mincer can be screwed on when required. This top is fixed to the bottom carcase by screwing up through the top rails (N). The backs (X and Y) may be in plywood or match-boarding, and are nailed into the rebates already worked for them. The two carcases are fixed together by screwing down through the bottom (J) to the top (K), using stout brass screws and brass sockets.

Hardware consists of three pairs of 2 in. brass

butt hinges, one pair of $2\frac{1}{2}$ in. hinges for the fall, one small door bolt and three ball catches. Wood or metal handles are

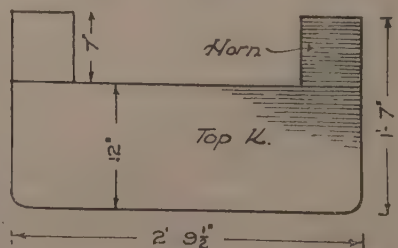


FIG. 8.—PLAN OF TOP.

optional.

Hardwood may be stained a golden or dark brown and varnished; soft woods, as deal, white-wood, etc., could be well primed and enamelled.

THE CUTTING LIST is as follows:—

		Long.	Wide.	Thick.
		ft.	ins.	ins.
A	4 legs	2	7 $\frac{3}{8}$	1 $\frac{3}{8}$
B	2 door stiles	1	11 $\frac{1}{2}$	2 $\frac{1}{2}$
C	2 door rails	0	10 $\frac{1}{2}$	2 $\frac{1}{2}$
D	2 door stiles	1	9	2 $\frac{1}{2}$
E	2 door stiles	1	9	2 $\frac{1}{2}$
F	4 door rails	1	0	2 $\frac{1}{2}$
G	2 upper ends	3	4	10
H	2 shelves	2	5 $\frac{1}{2}$	9 $\frac{1}{2}$
J	1 bottom	2	5 $\frac{1}{2}$	9
K	1 top	2	9 $\frac{1}{2}$	19
L	1 bottom	2	5 $\frac{1}{2}$	17 $\frac{1}{2}$
M	1 fall front	2	4 $\frac{1}{2}$	16
	2 Fall clamps	1	4	2 $\frac{1}{2}$
	1 drawer front	1	1 $\frac{1}{2}$	4 $\frac{1}{2}$
	1 drawer front	1	1 $\frac{1}{2}$	5 $\frac{1}{2}$
	1 drawer front	1	1 $\frac{1}{2}$	13 $\frac{1}{2}$
N	3 top rails	2	5 $\frac{1}{2}$	2 $\frac{1}{2}$
O	2 drawer rails	1	2 $\frac{1}{2}$	2 $\frac{1}{2}$
P	4 drawer runners	1	3 $\frac{1}{2}$	1 $\frac{1}{2}$
	1 for two kickers	1	0	1 $\frac{1}{2}$
R	1 centre end	2	0 $\frac{1}{2}$	17 $\frac{1}{2}$
S	2 lower ends	2	1 $\frac{1}{2}$	16
T	1 shelf	1	1 $\frac{1}{2}$	16
U	2 shelves	2	4 $\frac{1}{2}$	8
	3 drawer guides	1	0	$\frac{1}{2}$
	2 drawer sides	1	4	4 $\frac{1}{2}$
	2 drawer sides	1	4	5 $\frac{1}{2}$
	2 drawer sides	1	4	13 $\frac{1}{2}$
	1 drawer back	1	1 $\frac{1}{2}$	3
	1 drawer back	1	1 $\frac{1}{2}$	4
	1 drawer back	1	1 $\frac{1}{2}$	12
	1 fall stop	2	4 $\frac{1}{2}$	1 $\frac{1}{2}$
	1 door stop	1	11 $\frac{1}{2}$	1 $\frac{1}{2}$
	2 shelf bearers	1	3	1 $\frac{1}{2}$
	4 shelf bearers	0	8	1 $\frac{1}{2}$
V	1 door panel	1	7 $\frac{3}{8}$	9
W	2 door panels	1	5 $\frac{1}{2}$	10 $\frac{1}{2}$
X	1 back	3	4	29 $\frac{1}{2}$
Y	1 back	2	1 $\frac{1}{2}$	28 $\frac{1}{2}$
	3 drawer bottoms	1	0 $\frac{1}{2}$	16 $\frac{1}{2}$

All sizes are net, excepting for drawer fronts and sides, $\frac{1}{2}$ in. being allowed on the width for fitting. (230)

SATINWOOD.—It is generally believed that the first arrival of this wood took place about 1765, but it was not until some ten years later that it began to be generally used. Chippendale, and afterwards Adam, Hepplewhite and Sheraton, those noted makers and designers in a golden age of artistic furniture, used the wood freely, but (owing probably to its scarcity) in small quantities, and principally in conjunction with mahogany and fancy woods of all kinds, such as amboyna, tulipwood, purplewood and other varieties. Later, as fresh sources of supply began to be discovered, it was employed to a greater extent, and its use has

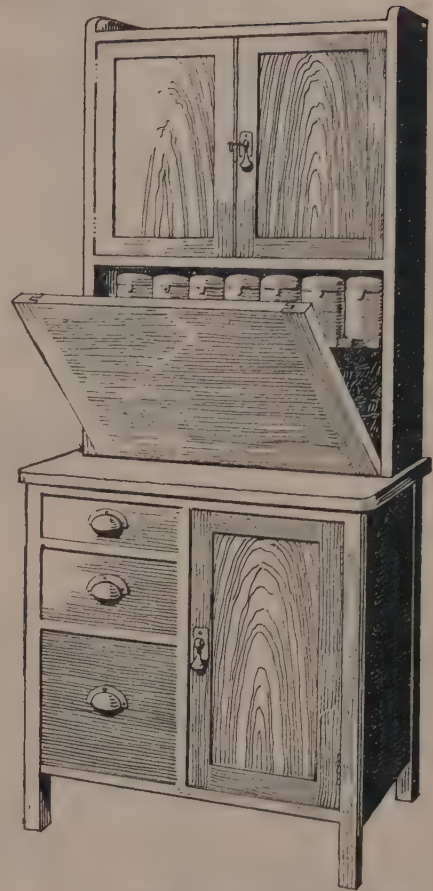


FIG. 9.—VIEW SHOWING FALL FRONT PARTLY OPEN.

been steadily increasing. The various descriptions have, however, never been over-plentiful in supply, and its more extended use, even to this day, has been restricted by its scarcity, its generally high price, and of late years by the cost of skilled labour that is necessary when fine results are desired.

Probably the first satinwood to reach this country came from the West India islands, derived from our own or Spanish possessions in these tropical lands in the Caribbean Sea, and it is from the same localities that the supplies for many years that ensued were obtained. Later, however, satinwood from East India began to appear, and this more plentiful source of supply largely supplemented the casual quantities that arrived from the West.

When polishing, the grain is not usually filled in, but is worked up from start to finish with transparent polish. The percentage of oily matter is considerable, and fingers should be kept clear of stray splinters.

CRAFT PROBLEMS

THE SHOWCASE JOINT AND ITS VARIATIONS

THE following notes and illustrations on the making of showcase joints should interest not only the craftsman, but also students who intend sitting for the various Handicraft examinations. On entering nearly any up-to-date stores, one is confronted by a neat glass showcase having a narrow rim of oak or other wood, and all that is apparent is a neatly mitred three-way joint. It is realised that the woodwork is rebated and jointed so as to conceal and join the plate glass sheets, and the ordinary observer passes the showcase without a second thought. It

mitred and glued together, and it is usual to glue across the joint a small piece of plywood as at (Fig. 2, P). This plywood holds the work together until the various tool operations have been completed, and it is then sawn off and the faces of the joint are cleaned up ready for polishing.

A variation of this joint is given at Fig. 3. In this case small sheet brass angle plates are let into the wood and secured with $\frac{3}{8}$ in. or $\frac{1}{2}$ in. screws. Another method is to make the joint as at Fig. 1 and mark it out for two $\frac{1}{4}$ in. dowels as Fig. 3, A. If the joint be fitted together and

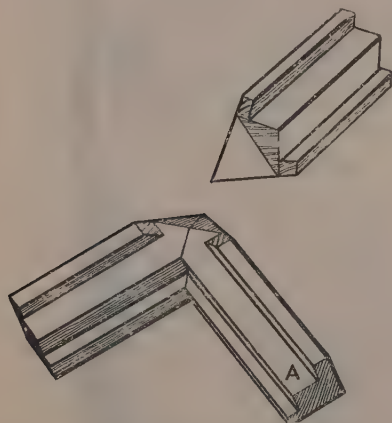


FIG. 1.—MITRED SHOWCASE JOINT.

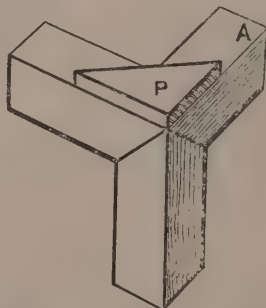


FIG. 2.—SEE PLYWOOD STRIP (P).

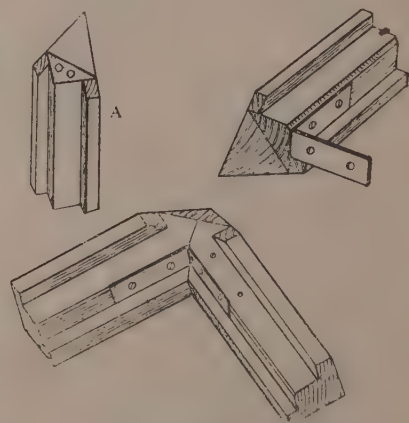


FIG. 3.—USE OF SHEET BRASS ANGLE PLATES FOR SECURING THE JOINT.

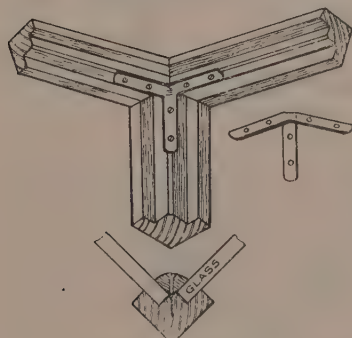


FIG. 4.—PLAIN MITRED JOINT WITH THREE-WAY PLATE.

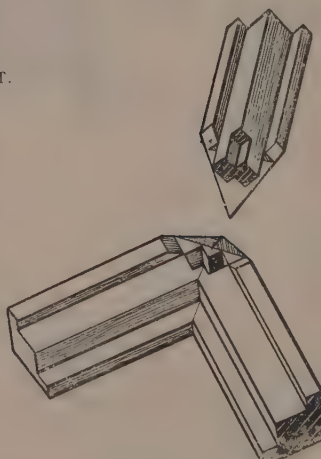


FIG. 5.—INTERLOCKING MITRED JOINT.

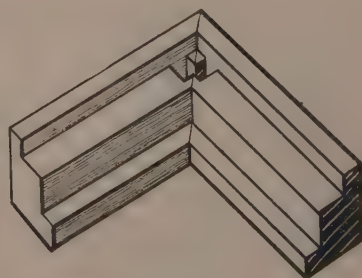


FIG. 6.—SHOWING THE MITRED PORTION OF FIG. 5.

is only when the worker is called upon to make such a showcase that he considers the variations of such joints.

For competitive work the three pieces may be mitred together as at Fig. 1, where the joint relies upon the adhesive to hold it together. To strengthen it a good practice is to glue ordinary cotton tape into the rebates. The thickness of this tape may be disregarded; it will not effect the bedding of the glass, but it will materially stiffen up the joint.

To make the joint the two pieces (A) are first

two fine household pins be placed between the pieces and pressure be exerted on the upright member, the indentations caused by the pin-heads will give the centres for the dowel holes. The holes may then be bored with a breast drill which is fitted with an $\frac{1}{8}$ in. or $\frac{3}{16}$ in. morse twist drill.

At Fig. 4 is shown the plain mitred joint, strengthened by a three-way angle plate. The lower sectional drawing indicates the manner in which the quarter-circle bead holds the plates in position.

We now come to the self-contained type of

joint and, owing to the interlocking action, no metal work will be required. The joint is shown asunder at Fig. 5 and it will be noted that, after the upright piece is glued in position, it effectively prevents the other pieces opening at the joint.

To make this joint the two pieces are first glued together and strengthened by glueing across them a strip of $\frac{1}{4}$ in. wood or plywood (as at P. Fig. 2). When the glue has set the mortise holes are cut into the joint as Fig. 6. The upright is then prepared and the twin tenons cut to suit. A very easy method of marking the tenons to fit the mortises is to smear the face where the mortise holes have been cut with a little dirty black oil obtained from the oilstone. When the upright is pressed upon the oiled face it will give a correct impression of the holes.

This joint is probably one of the most effective of the self-contained types, because it allows any or all of the edges or arrises of the frame to be neatly rounded over.

At Fig. 7 is illustrated a more complicated joint of the mitred, boxed tenoned and dovetailed type. It is a useful, strong and effective joint when properly made and glued up. The worker, however, is immediately in difficulties if he attempts to round over the edge (A, Fig. 2) to, say, a half-inch radius, because this will cut through and expose the boxed tenons.

Where naked plate glass, silvered glass, or ordinary stout window glass is used for case and shop fitting work all the rebates should be given at least one coat of glue size and lamp black mixed to the consistency of paint. This black preparation should also be applied to the inner edges of the angle bead (see Fig. 4). If the edges of the plates have not been ground and

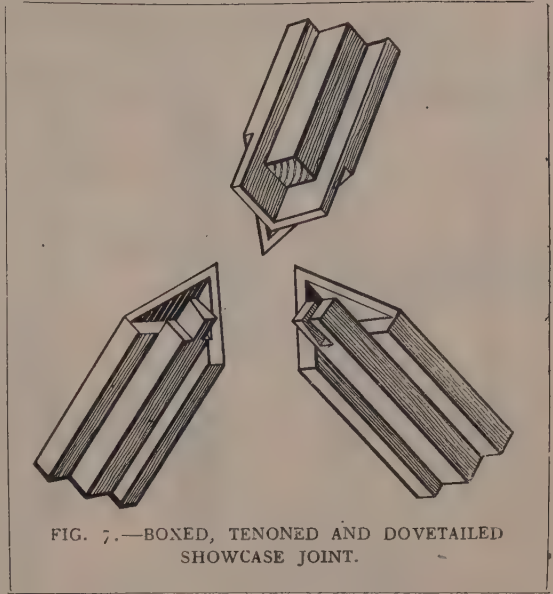


FIG. 7.—BOXED, TENONED AND DOVETAILED SHOWCASE JOINT.

levelled up to clear all the splinters of the glass-cutting process, the edges of the plates should be blacked with the same mixture. This blacking prevents reflection and general unsightliness such as would be caused by using light coloured beads which every observer would instantly see when looking into the showcase.

All the joints illustrated have actually been made up out of timber measuring $\frac{1}{4}$ in. by $\frac{1}{4}$ in. end section before it was rebated. There are, of course, many other variations, especially where larger timbers are used. (227)

FOR THE JUNE WOODWORKER we have in type a four-page article on the sideboard of a modern living room suite which we propose to run over the summer months. The design for the draw-extension table of this suite was given in April (page 101) and has met with general acceptance. The suite is intended for carrying out in oak and, in addition to the dining table and sideboard, will include a set of chairs and a secretaire. The Home Carpentry Series will also be continued over the summer, and many other articles practical interest and usefulness are in preparation. Readers may again be reminded of the risk of missing their monthly WOODWORKER (especially during the holiday months) if there has been neglect in placing a definite order with the local newsagent. See that your June, July and August numbers are definitely on order.

WOODWORK JOINTS.—A new and revised edition of this well-known volume in *The Woodworker's Series* has been in preparation for several months and will be ready (price 3/6 net) on the 19th of May.

FINISHING TEAK.—W. W. B. (Merthyr Tydfil) asks how to finish teak to a rich brown colour.

REPLY.—Dissolve vandyke brown water crystals or lumps in warm water and add a desertspoonful of vinegar to a pint of the water stain. Stain the wood and when dry fill in the grain with a walnut-coloured wood-filler. Proceed to fad-in and body up the work in the usual manner and finish by stiffing-up or brightening up. You should note also that if teak is stained with a mahogany wood dye it will give an excellent representation of mahogany. Personally we prefer teak with a mahogany finish. (225)

THE ATTENTION OF READERS may be drawn to an advertisement (this month) of the British and General Trading Company which includes a voucher entitling the user to a reduction of one shilling on every order of not less than five shillings sent in during May. To those who are in need of the articles described an offer of the kind is timely.

HOME CARPENTRY

A THREE-WINGED CLOTHES MAIDEN—MORTISING AND TENONING

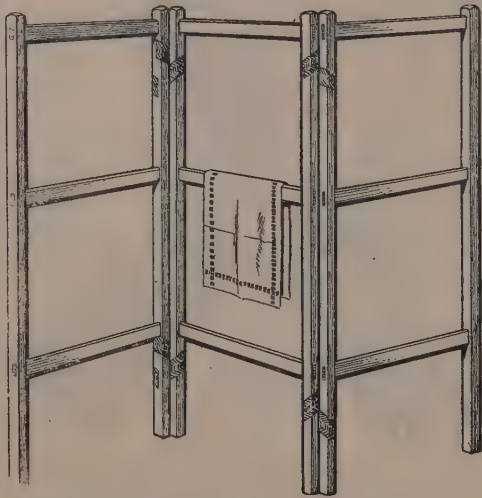


FIG. 1.—MAKING A CLOTHES MAIDEN, 4 FT. HIGH. AN EXERCISE IN HOME CARPENTRY.

IN spite of the fact that there are a hundred and one contraptions for the airing of household linen the busy housewife still appears to favour either the three-winged or two-winged clothes maiden. One advantage of the three-winged variety is that it stands more firmly and folds up into a smaller compass for storage than the two-winged pattern. The following instructions for making apply generally to both types, but more particularly to the clothes maiden, illustrated at Fig. 1. For the home worker Fig. 1 illustrates one of the best introductions to the simple mortise and tenon joint because the job is not too exacting, and even a spoilt rail can be replaced at a minimum cost.

TO MAKE UP THE ARTICLE you will require nine cross rails, 23 ins. long, and six upright rails (or stiles as the uprights are termed) 4 ft. long, and these may be cut from the edges of a planed 1-inch red deal board, thus obtaining strips approximately $\frac{1}{8}$ ths of an inch square on their end. These sizes make up quite a serviceable article as illustrated, although it may be more convenient for some workers to obtain planed timber, $1\frac{1}{2}$ in. wide by $\frac{3}{4}$ in. thick. One thing is very important: do not build your clothes maiden from knotty timber. The quality used should be absolutely prime and free from the bluish coloured sapwood. After removing the machine saw marks from your timber by carefully taking off a few shavings, place on the face and edge marks (for which see previous chapters) and then lay them on the bench one behind the other (Fig. 2). Take up a large try square and marking knife and score a cut across them as at Fig. 2. These lines are termed the "shoulders," and the above method will ensure that all the

pieces are marked to exactly one length. Next lay the uprights one behind the other and mark out the positions for the tenons as suggested at Fig. 3. The distance A must not be less than C and the width B must exactly equal the distance D. (See Figs. 2 and 3).

Next, take up a mortise gauge and, by adjusting the screw at the end of the stem, set the marking spurs $\frac{1}{8}$ th in. apart so that they nicely clear the $\frac{1}{4}$ in. chisel which you will use for cutting the mortises (Fig. 4). Some makes of mortise gauges are fitted with an ordinary screw at the end of the stem instead of the thumb-screw which is shown in our illustration, and if this be the case you will require a screwdriver to adjust the steel spurs. The next step is to adjust the stock of the gauge so that the gauge marks come exactly in the centre of your timber. This is usually accomplished by "trial and error," and it is an easy matter to prick the wood with the spurs from each side of the timber until you prove that the gauge lines are situated centrally. When the gauge is properly set hold it as at Fig. 5, and slightly tilting it forward so that the edge of the stem touches the wood and thus prevents the spurs striking too deeply, push the gauge forward, when the necessary marks will be lightly scored on the wood. The face of the stock must of course be in contact with the side of the wood which carries the face mark, and the gauge marks must be made on both edges of each of the uprights.

If the stiles and cross rails are of equal thickness the gauge may be used to mark out the tenons on each end of the cross rails without readjustment, but if the cross rails are to be thinner than the uprights it will be necessary slightly to adjust the stock but not the spurs. This readjustment of the stock will have to be such that the cross rails stand in from the face and the back of the uprights equally.

The maker may now proceed to cut out the core of the mortises, and it will save considerable annoyance to the household and much unnecessary malleting if the bulk of the waste wood is bored away. This may be accomplished with the hand drill and a $\frac{1}{4}$ in. twist bit suggested at Fig. 6, or with a brace and shell bit of the usual joiner's pattern. Thanks to wireless, practically every household nowadays possesses the type of hand-drill sketched at Fig. 6. It is a useful tool for many woodworking processes, such as boring holes for nails and screws, etc.

After boring a series of holes which will relieve the chisel from binding when cutting the mortises, proceed to cut the core away by repeatedly paring with the chisel, taking care to hold the tool vertically when cutting away the corners (A, Fig. 7). Cut the mortise to half the depth of the wood from one edge of the rail and then turn the wood over and commence the paring from the other edge. Do not undercut the mortises by holding the chisel as at B, Fig. 7, and try to

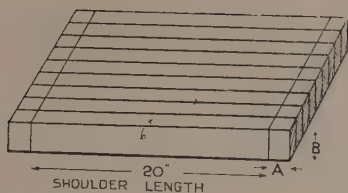


FIG. 2.—MARKING THE RAILS.

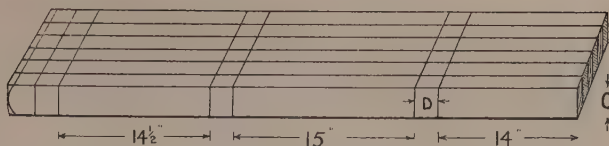


FIG. 3.—STILES PLACED IN POSITION AND MARKED.

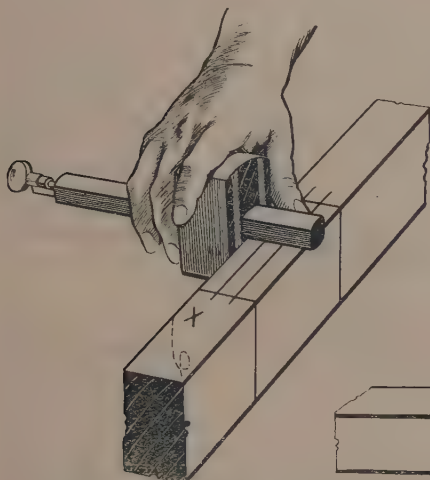


FIG. 5.—GAUGING.

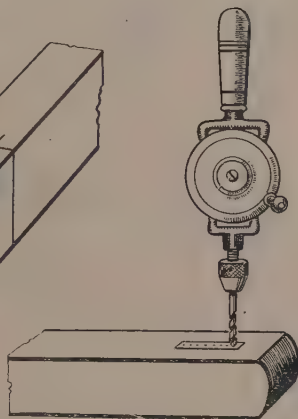


FIG. 6.—BORING THE WASTE.

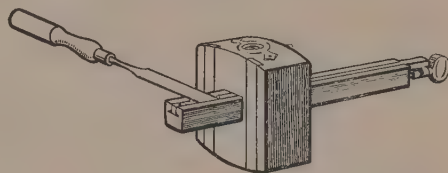


FIG. 4.—ADJUSTING THE MORTISE GAUGE.

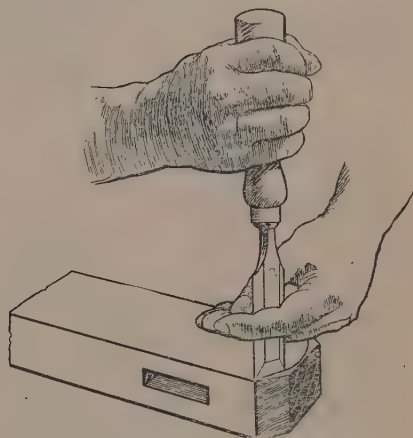


FIG. 10.—PARING THE ENDS.

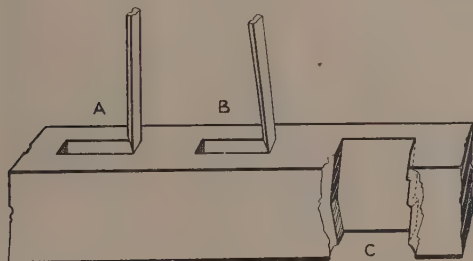
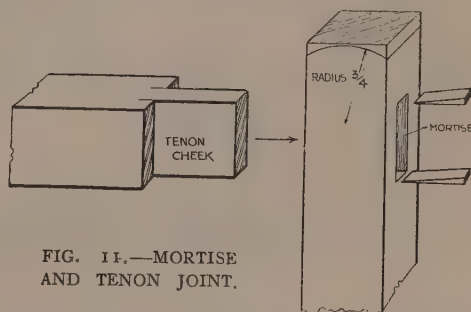
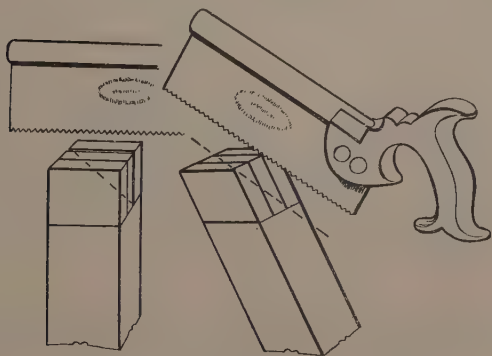
FIG. 7.—CUTTING THE MORTISES.
(A, CORRECT; B, INCORRECT).FIG. 8.
CUTTING
WEDGES.FIG. 11.—MORTISE
AND TENON JOINT.

FIG. 9.—METHOD OF SAWING TENONS.

avoid inequalities as shown at the broken drawing C. The sides of the mortises are pared smooth by holding the chisel as at Fig. 10.

SAWING THE TENONS.—When commencing to saw the tenons place the wood obliquely in the vice as at Fig. 9, and continue the sawing until the kerf reaches the diagonal line drawn from the shoulder to the top corner. Then place your wood in a vertical position in the vice and, holding the saw horizontally, again saw down to the shoulder line. The diagonal cut made in the

first instance will guide your blade and little or no trouble will be experienced in sawing to the required line. Take care, however, to make your saw cut on the waste side of your vertical line, otherwise your tenons will be too slack for their respective mortises. After cutting down the cheeks of the tenons turn the wood flat on the bench and saw down the shoulder lines.

Next try each joint by fitting the work together in a dry (unglued) condition, making any slight adjustments to the parts that are too tight. Number the joints in pencil and take the work asunder. Mark out the radius at the ends of the uprights with a pair of pencil compasses (see Fig. 11), saw off the corners and chisel the ends to the desired shape by taking off small vertical cuts as at Fig. 10. Take up a short end of hardwood, $\frac{1}{4}$ in. thick, and saw it up into small wedges, cutting one wedge out of the other as at Fig. 8. These wedges may be required for fastening the tenons into the mortises (Fig. 11), but if the work has been very accurately made they will not be required. Clean off all the cross

rails and uprights by taking a thin finishing shaving off all their faces with the metal smoothing plane and the maiden is ready for glueing together.

THE GLUE should be hot and about the consistency of cream. Glue the insides of the mortises with a small brush, then the cheeks of the tenons, quickly knocking the work together. Test the diagonals of each wing to ensure the work being left square, and set all aside to dry. If necessary use your wedges on any of the slack joints, glueing them in position.

Next day on taking up the work cut off any protruding tenons or wedges and then glasspaper the whole of the job with No. 1 $\frac{1}{2}$ glasspaper. Two coats of shellac spirit varnish will complete the work, and finally the three wing frames are hinged together with upholsterer's chair webbing, this being secured with $\frac{1}{2}$ in. large-headed tacks (see Fig. 1). If the webbing be threaded in and out as depicted in the perspective sketch it will allow the frames to be folded either way forming, in fact, a double folding hinge. (238)

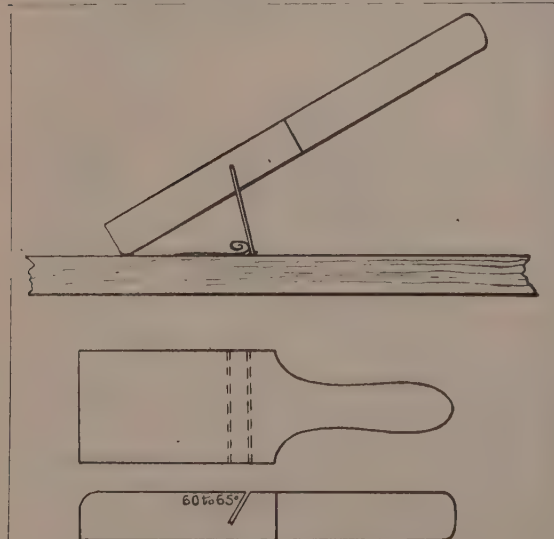
PROTECTING THE FINGERS.—Many amateurs when cleaning up hardwood often experience great discomfort through the heat of the steel scraper burning the fingers. This may be overcome as follows. Take a piece of hardwood and trim it up to 6 in. by 2 $\frac{1}{2}$ in. by 1 in. Make a saw cut 2 $\frac{1}{2}$ in. from one end at an angle of about sixty degrees and about two-thirds the depth of the wood (see sketch). Round off the nose of the scraper-holder, slip the scraper into the saw cut and it is ready for use as suggested. This method is often employed in workshops where men are

occupied in scraping up large flat surfaces for two or three days at a time.—E. GRANVILLE (London, E.2). (232)

COCUSWOOD is extracted from the forest areas of tropical America and the West Indies, most of the supplies being derived from Jamaica. The timber is imported in billets of about five to eight feet in length, and with a diameter of about three to six inches. Its principal uses are for turnery purposes and for the making of flutes and other musical instruments of a similar description. It is a choice timber, and is often substituted for partridge wood in inlaid work. The wood is exceedingly heavy, being about 80 lb. to the cubic foot, and is of the hardness of ebony. The heart wood is of a dark, rich brown, and the narrow sap wood a bright yellow colour.

THE BUFFET.—In Tudor times the buffet or side-board was the place where the steward to a noble family ate his portion of the delectable meats to make sure they contained no poison before being served up to his masters. The name Beefeaters, given to the Yeomen of the Guard, is a corruption of Buffetiers, *i.e.* attendants at a buffet or side-board. Their costume has been little changed since Tudor times. The wardrobe had for its prototype the armoire, a cupboard in which valuable arms and armour was once kept free from dust and rust. When armour was no longer worn they became cupboards in which to hang other dress equipments and out of this developed the modern wardrobe.

“HOW TO QUALIFY AS A HOME CRAFT INSTRUCTOR.”—Send threepence for this useful little pamphlet. Evans Bros. Ltd., Montague House, Russell Square, London, W.C.1.



PROTECTING THE FINGERS WHEN USING THE STEEL SCRAPER (FROM A READER).

TWO-SEATER PEDAL CAR

A LUXURIOUS TOY

JUST as this is the motoring season for grown people, so the youngsters take a delight in driving their own cars about. To make a toy car is a simple matter nowadays because all the metal fittings can be obtained, leaving just the body work to be made. The car in Fig. 1 is of the "two-seater" type, although, if intended for very small children, one can be carried in the dickey seat at the back. Actually of course, there is only room for one in the front, the term "two-seater" being given because of its likeness to the full size prototype.

It is driven by pedal and chain mechanism, two sprocket wheels being provided, one on the rear axle and one between the pedal cranks. The distance between the pedals and rear axle is controlled by the chain, but before making the body the reader is advised to consider the size of the child for whom the car is intended. This, in a great measure, determines the position of the driving seat. As given in the accompanying illustrations it is suitable for a small child. It is a simple matter to adjust it, however.

The skeleton elevations in Fig. 2 show the relative positions of the various parts. The heavy lines indicate the metal fittings and the others the wood body. It will be noticed that the front wheels and their axle framing are directly con-

nected with the steering column, but are quite separate from the pedal and back wheel mechanism. They must be fixed in such a position that the steering wheel is in a comfortable position for the driver. Few accessories are shown on the completed motor in Fig. 1, but such parts as hooter, petrol-can, starting handle, licence holder, and so on can be obtained.

THE MAIN FRAMEWORK must be laid down first. It is made entirely from $1\frac{1}{4}$ in. squares put together with mortise and tenon joints. It consists of two main side rails connected by four cross-pieces, and a centre rail fixed between the two inner cross-pieces. These parts are shown clearly in Fig. 3. An enlarged view of one of the joints is given in Fig. 4.

This makes a good

strong job, but those who do not care to spend so long on the work can substitute plain butted joints. In this case strengthening brackets should be added. For a still stronger job than that with the joints in Fig. 4, the mortises can be cut right through and the tenons wedged from outside. Deal can be used for the framing.

Fig. 3 also gives the supporting members of the superstructure. The radiator is a piece of $\frac{3}{4}$ in. deal with the top edge cut to form an obtuse joint in the style of the modern car. It is glued and nailed to the front cross-piece. As the sides of the bonnet splay outwards towards the back

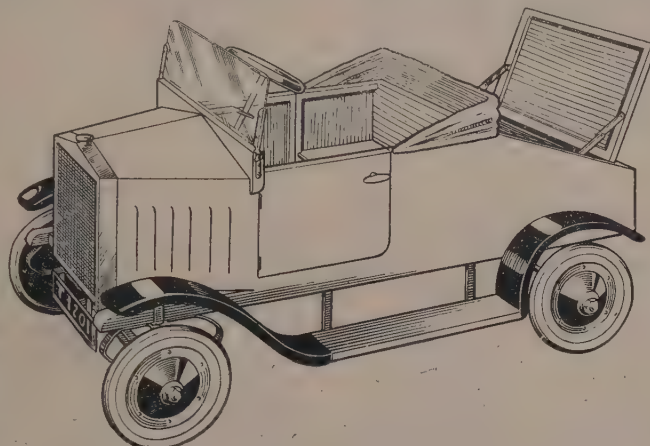


FIG. 1.—BOY'S PEDAL MOTOR CAR—THE "SPORTS"
TWO-SEATER, LENGTH OVER CHASSIS, 3 FT. 9 IN.

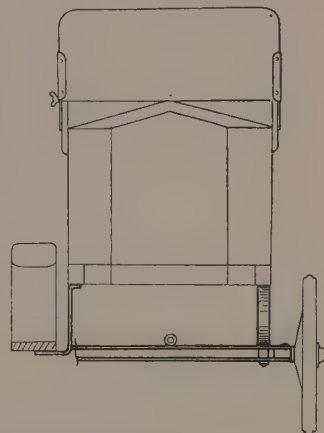
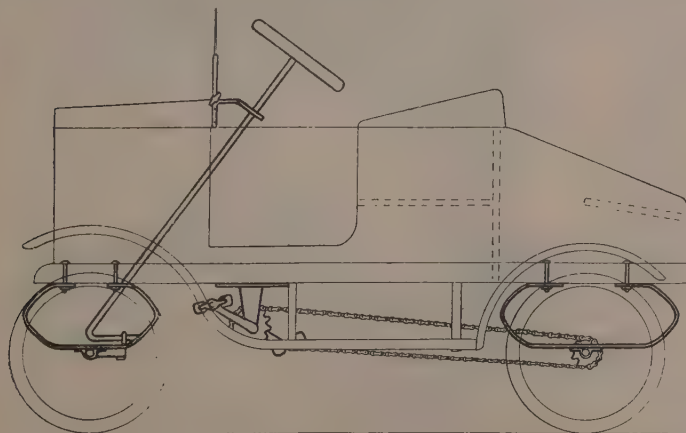


FIG. 2.—SKELETON ELEVATION, SHOWING RELATIVE POSITION OF FITTINGS.

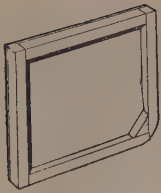


FIG. 7.—
MARKING
DOORS.

the split pins passed through the holes. These effectually hold them in place. The hub caps are put on last.

Before adding the bodywork the metal parts should be removed. Fig. 6 shows how the bonnet is made. Plywood is the best stuff to use. Supporting fillets are glued and nailed to the front of the dashboard and the plywood tacked down on to these. It is necessary to plane the edges of the plywood at an angle. The top side joints can be butted, the top pieces running right through and overlapping the sides. A mitre joint is more suitable for the centre. Lining pieces are added to the top of the frame to fill up the triangular gaps at the sides.

Fig. 6 shows how the sides of the body are made from single sheets of plywood. They are cut to shape and nailed in position. Stiffening pieces are added at the edges as shown. The sharp edges can be rounded over. In regard to the seat, the height of this depends mainly on the child. It is a good idea to arrange supporting fillets for it which can be adjusted to any convenient position.

THE METHOD OF MAKING THE DOORS is shown in Fig. 7. A panel of plywood is cut to fit the space accurately, and a framing of battens glued and

nailed around the edges inside. By fixing a corner bracket at the lower rear corner the shape can be arranged. Here again the sharp corners should be taken off. Butt hinges can be used to hang the doors. Special handles with turns can be obtained to lock the doors. It is as well to obtain these first so that the battens can be made wide enough to hold them.

To support the wind-screen two packing pieces should be fixed at the ends of the dashboard. Their thickness can be ascertained by placing the whole fitting in position and measuring. Metal brackets are supplied to hold the running boards. They are bolted to the main frame. The lower ends of the mudguards are screwed to the running boards, whilst the upper ends have brackets already fitted.

The construction of the dickey lid is similar to that of the doors. Stays should be added to prevent its opening too far. An opening handle also is required. The hood is a dummy. It can be made from three pieces of plywood, with a covering of American cloth loosely fixed over it. (236)

COMPLETE FITTINGS, with all accessories, for making a toy pedal car of the type described may be obtained from The South London Wheel and Rubber Tyre Works (Dept. W.), 61—63, New Kent Road, London, S.E.1. (When writing, mention "WOODWORKER, May, 1930.")

WINDOW PLANT BOX

THIS article has been prepared at the request of a reader who wishes to make a window-box to stand on legs, to be finished in green paint. The length of the box is to be 4 ft. 6 in.; width, 10 in.; depth, 9 in., and the height to top 2 ft. 10 in. Fig. 1 shows a sketch of a box made to these requirements. Pine is a very suitable wood to use if the box is to be painted, but other

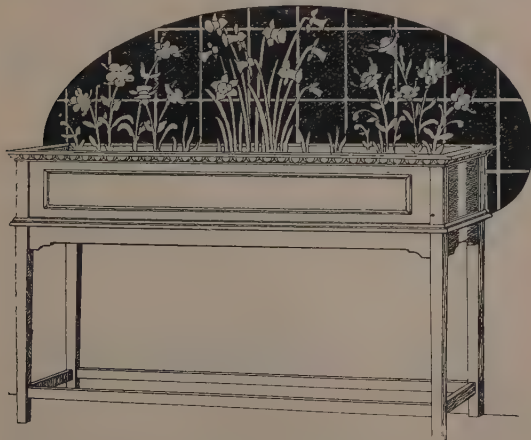
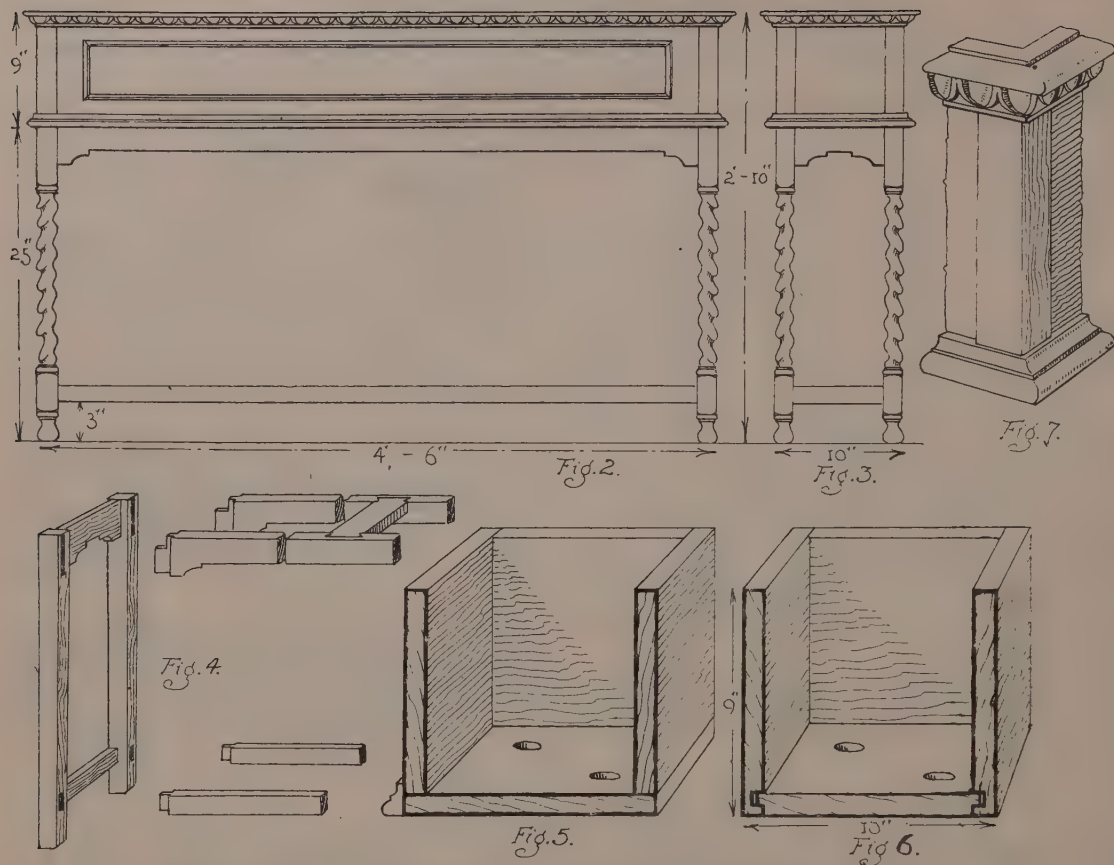


FIG. 1.—WINDOW PLANT BOX.
HEIGHT, 2 FT. 10 IN. WIDTH, 4 FT. 6 IN.

readers who may be making a box of this kind could use oak or a similar hardwood. In the latter case turned legs could be introduced as suggested in Figs. 2 and 3, and the dimensions altered to suit individual needs.

THE LEGS, which are framed up separately from the box, should be 2 ft. 1 in. long by 1½ in. or 1½ in. square. If plain legs are used they should be tapered to 1½ in. at the bottom, and turned legs could be of any standard pattern. The top framing rails are 3 in. wide at the ends, shaped to 2 in. wide in the middle by ¾ in. thick, and the bottom rails are 1½ in. wide by ¾ in. thick. The rails are tenoned into the legs as at Fig. 4, the legs being framed in pairs first with the short end rails, and then joined with the long side rails. A small rail should be dovetailed into the top edges of the two top side rails to stiffen them.

THE BOX should be made up from ¾ in. stuff. The sides may be either nailed or screwed, or dovetailed to the ends, and the bottom could be nailed or screwed to the edges of the sides and ends (Fig. 5), or grooved in as at Fig. 6. Moulding is mitred around the top and bottom edges of the box, and if the bottom is nailed on the moulding should be wide enough to cover the joint (Fig. 5). The joints at the corners of the box could be covered with small slips about ½ in. thick, mitred at the corners, as at Fig. 7, and arranged to line with the legs as at Figs. 2 and



FIGS. 2 TO 7.—ELEVATIONS AND DETAILS OF WINDOW PLANT STAND.

3, while the sides of the box could be panelled out with small moulding.

A box of this kind is not generally used to contain the soil, but the plants are grown in pots. A number of 1 in. holes could be bored

in the bottom for ventilation, and a shallow zinc tray made to fit in the bottom to catch the moisture. The box could be screwed to the top leg rails, or small blocks fixed under the bottom to fit between the leg rails. (234)

"CABINET CONSTRUCTION."—To home woodworkers, especially to those engaged in the making of furniture, a knowledge of details is necessary. For many years "Details of Cabinet Construction" proved to be one of the most useful handbooks for this purpose. Last year the volume was completely revised and re-published with new illustrations and a series of twenty-four plates of details of period furniture. The handbook deals specifically with the separate and distinct detail parts which go to make up pieces of ordinary furniture, each detail being treated in a way that will guide the reader through its construction in any style and in any size. The contents comprise joints in carcass work, cabinet and table tops, table and chair legs, cabinet doors (including barred doors and leaded lights), drawer making (including rails and runners), cornices, cappings and shapings, facing, etc., the rule joint, cabinet backs, veneering, inlaid bands and stringings, working mouldings by hand,

setting-out boards and metal fittings. (Price 3/6 net). Evans, Bros. Ltd., Montague House, Russell Square, London, W.C.1.

"STAINING AND POLISHING."—This volume, one of the most popular of *The Woodworker Series*, has (with the exception of two or three chapters which required little modification) been entirely re-written. In view of new ideas in furniture design and of modern methods, this was felt necessary in order to bring the book thoroughly up to date. New features are the chapters dealing specifically with the treatment of different timbers, whilst prominence is given to such processes as the cellulose finish, the acid finish, french polishing by machinery, cellulose dipping, etc. A useful index of over a thousand references is added. (Price 3/6 net). Evans Bros. Ltd., Montague House, Russell Square, London, W.C.1.

LIGHT CARPENTRY—A FIRE SCREEN

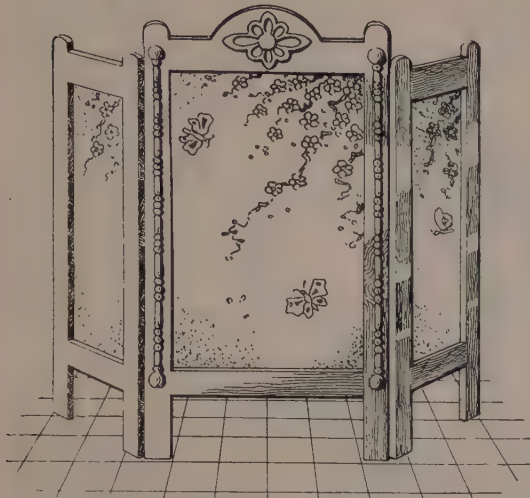


FIG. 1.—FIRE SCREEN, 29½ IN. HIGH.

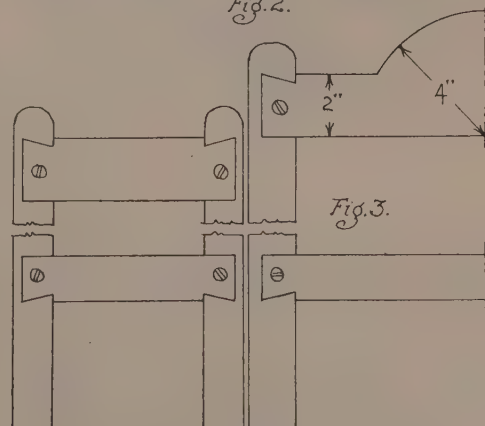
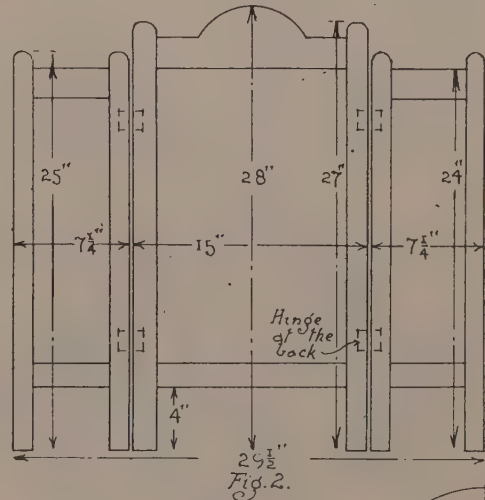
THE fire screen shown by the sketch (Fig. 1) is made with three frames in such a way that the two side frames will fold flat against the back of the middle frame. A screen of this kind is an improvement on some of the older kinds as, when it stands on the hearth with the two end frames at an angle, it completely covers the fireplace. The frames are each made with two stiles and two rails framed together, and ornaments may be added in the way of frets and turned beading to suit the maker's taste. The openings in the frames may be filled with tapestry, silk, or some such material, or with coloured prints of nautical, coaching or sporting subjects.

Oak is especially suitable for making the screen, but almost any of the cabinet woods could be used if desired. Suitable dimensions for a screen for general use are shown at Fig. 2, but they may be altered if a small or very large fireplace is being dealt with.

The stuff used should be from ½ in. to ¾ in. thick. The stiles in the middle frame are 2 ft. 3 in. long by 1½ in. wide; top rail, 1 ft. 2 in. long by 4 in. wide, shaped as at Figs. 2 and 3, and bottom rail 1 ft. 2 in. long by 1½ in. wide, while the stiles in the two end frames are 2 ft. 1 in. long by 1½ in. wide; top rails, 7 in. long by 2 in. wide, and bottom rails 7 in. long by 1½ in. wide. The rails may be tenoned into the stiles or may be half-lapped and screwed, the joints being slightly dovetailed as at Fig. 3. If coloured prints are used to fill the openings they may be either tacked at the back, or fitted between two wood fillets pinned to the edges of the frames. Tapestry panels would be stretched tight and tacked at the back, while silk could be gathered, the edges being finished with strips of gimp or strips of the same material folded about ½ in. wide. In Fig. 1 a fret is shown fixed to the top rail of the middle frame, and strips

of turned beading finished at each end with a wood button are fixed to the stiles. The frames are fixed together with 1½ in. brass hinges screwed at the back. (235)

THE USE OF CEDAR is limited to a few industries. It might almost be said that it is confined to one, that is, the manufacture of cigar boxes. The supplies that arrive in this country are not large as compared with mahogany, but they are generally sufficient for the limited trade that is done in this way. Holland and New York are the great centres for this cigar-box work, and huge quantities are utilised. A small proportion of the logs received in our own markets is generally in demand for boat-building purposes. The longest and straightest grown logs are needed, and the wood, with its straight, even and uniform grain, is used for bending purposes in the construction of light pleasure boats such as one sees on the Thames and other rivers. Not infrequently it is mistaken for mahogany or baywood.



FIGS. 2 AND 3.—ELEVATION AND DETAILS.

THE LYCH GATE

IN response to several enquiries we give particulars for constructing a lych gate. The design illustrated in Fig. 1 suggests a simple construction for the purpose of beautifying the garden entrance in this way at very little cost.

The parts may be made of oak, which can be weathered by treating with strong soda or lime-wash, or, if the gate is constructed in deal, it may be stained with solignum or other wood preservative.

The chief structure is erected on two heavy sleepers about 8 ft. long by 12 in. wide and 6 in. thick. These are firmly fixed in the ground after being mortised to receive the two uprights and their curved braces or struts.

THE TWO MAIN VERTICAL POSTS which support the roof are of 6 ft. by 6 in. material, tapered to 4 in. by 4 in. at the top. They are 7 ft. 9 in. long each, which includes a 6 in. tenon on the bottom and a 3 in. tenon on the top. They are

also mortised as shown in Fig. 4 to receive the tenons on the various braces. The framework of each end is constructed as shown in dimensioned elevations (Fig. 2) from a cross piece or head of 4 in. by 4 in. material 6 ft. long, supported by two arched braces underneath and having two rafters to form the pitch of the roof. These are stub-tenoned and chase-mortised into a central vertical strut immediately above the main post, which also has a slot 3 in. deep by 1 in. wide to receive the ridge piece. The feet of the rafters are stub-tenoned into the cross head and also butt against the 4 in. by 2 in. plate. This is 7 ft. long and is cogged and bolted to the ends of the cross-heads of each frame, so serving the purpose of carrying the roof spars and holding

the end frames rigid and vertical.

THE ROOF SPARS are of 3 in. by 2 in. material and may be cut out of the solid to a sprocket



FIG. 1.—DESIGN FOR A LYCH GATE.

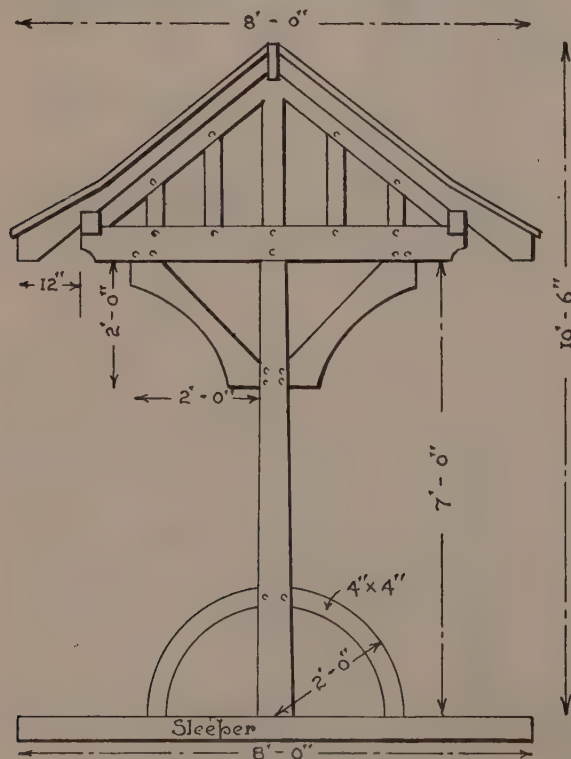


FIG. 2.—END ELEVATION.

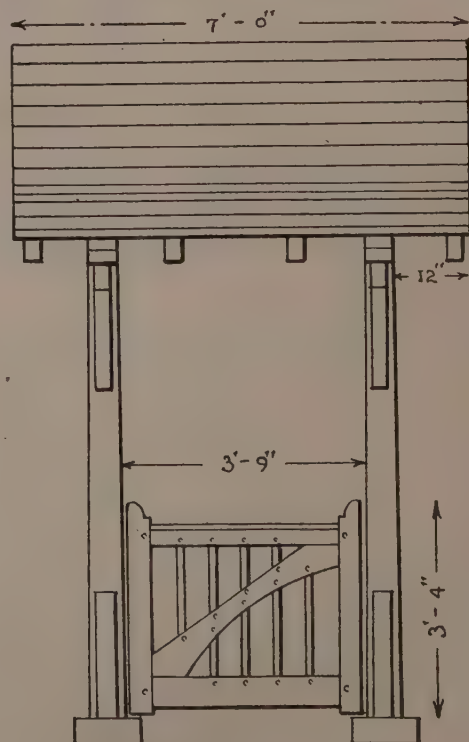


FIG. 3.—FRONT ELEVATION.

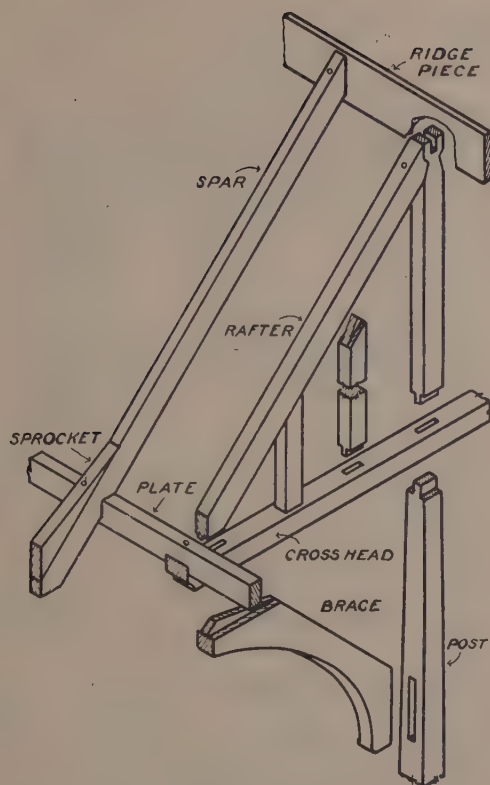


FIG. 4.—DETAILS OF CONSTRUCTION.

about 6 in. deep at the bottom end, or a tilting sprocket may be nailed on and subsequently shaped as shown. The spars are then bird-mouthed near the bottom to fit over the plate and cut to fit to the ridge piece at the top. These are then securely nailed in position.

A matchboarded roof is suggested on which felt, asbestos tiles or terra-cotta tiles may be fixed.

Fig. 5 suggests a type of heavy braced gate suitable for a gate 3 ft. 9 in. wide. The two outer stiles are 3 ft. 4 in. long by 4 in. wide and 2½ in. thick. They may be shaped at the top as

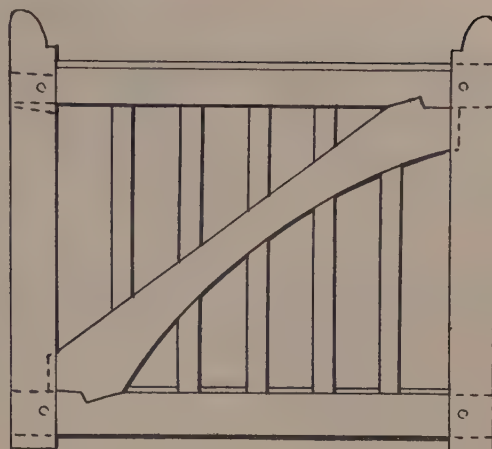


FIG. 5.—SUGGESTED TYPE OF GATE. SIZE, 3 FT. 9 IN. WIDE, OR AS REQUIRED.

shown, and mortised 4 in. from the top and 2 in. from the bottom to receive the tenons on the rails. The rails are 3 ft. 9 in. long and of 4 in. by 2½ in. material, the top edge of each being slightly weathered to turn off the rain. The rails are tenoned their full width and one-third their thickness to fit the mortises in the stiles. The top mortise and tenon on the hanging stile may be dovetailed as shown. This is effected by chopping out a dovetailed mortise and making a corresponding dovetail tenon to fit. The narrow end of the mortise is made wide enough to take the wide end of the dovetailed tenon, plus ¼ in. for a hardwood key to be driven in underneath. This makes an efficient joint for a heavy gate where so much weight is hinged. The brace is then shaped from a piece of 8 in. by 2 in. material to fit in between the top and bottom rails (Fig. 5). This type of joint does not allow the brace to push off the stiles as may happen when the brace merely butts into the corner of the rail and stile. The rails together with the brace are mortised to receive the 3 in. by 1 in. vertical bars, and it will be noticed that most of the tenon joints in the gate and framework are secured with hardwood pins, the ends of which are allowed to project about ¼ in. (222)

LIGNUM VITÆ is a hardwood principally in demand for engineering work. It is a fairly common growth in most districts in tropical America, and is exported in short pieces of round timber which range from about 5 to 14 in. or more in diameter. The wood is extremely heavy, its dry weight being stated as from 73 to 83 lb. per cubic foot, and even a piece of the thin bark will sink like a stone when put in the water. It is also intensely hard, splits with difficulty, and has a surface that is dull, smooth and cold to the touch.

It exudes, after being sawn, a greasy, gummy substance which is sticky to the touch. In colour it is of a dark brown streaked with black; the sap wood is white and narrow, but quite as valuable as the heartwood. Its uses are confined to the making of bearings for axles in machinery, to the manufacture of ships' pulley blocks, for the construction of bowls and other objects made by the turner, and for use in the production of drugs. This wood is never measured, but disposed of by weight.

POLISHING NOTES

THE TREATMENT OF CARVED AND OTHER RELIEF WORK

SEVERAL readers have recently enquired about the methods of treating low relief carvings, such as small panels cut on the solid wood of bedstead head and foot rails etc. Strictly speaking, the best workers and artists consider that carvings should be slightly oiled and that they should be left free from any polish of the gum and shellac type. Factory-made articles, however, are in nearly all cases treated with polish to give a dry or dull shine to the raised portions of the carvings, and the stamped or punched groundwork is more or less treated with stain or polish so as slightly to darken it to match the surrounding polished parts. The following are a few of the treatments used on different woods.

Various Woods.

SATIN WALNUT.—Both the raised portions and the groundwork are wiped over with a tuft of old flannel which has been dipped in raw linseed oil and turpentine. Three parts of oil to one of turpentine is the correct proportion. Immediately wipe off the surplus oil with a dry rag and leave the work to dry for a few hours. Mix two parts of brush polish with one part of methylated spirits and apply this to the carving and ground with a mop brush. Do not soak the carving too freely with this brush coating but spread it well and evenly. When dry, ease off any irregularities of the raised parts with spent No. 0 glasspaper, and then apply another coat of undiluted polish to the raised portions. Again ease down with glasspaper and apply polish with a small rag-covered polishing rubber until the desired dull shine appears. If the wood is soft and porous it may be necessary to apply three or even four coats of brush polish to the raised parts of the carving before you resort to the polishing rubber to impart a dull shine. Brush polish for this purpose may consist of 6 ozs. brown or orange shellac to 1 pint methylated spirits. If the satin walnut wood is of a very light colour and the finish is desired of a pale tone, use both brush and rubber charged with a white or transparent polish made by dissolving 7 ozs. bleached white shellac in 1 pint methylated spirits. When making polish it is always advisable to use more bleached shellac to the pint of spirits than when making it with an orange shellac.

AMERICAN WHITEWOOD which is stained to a mahogany shade requires greater care with regard to the carvings. Certain portions of the carvings, such as where the leaves or scrolls are modelled up and turned, will show a certain amount of end grain wood, and this of course will take the stain more deeply than the plank way of the grain. When staining the ground and the carving it will therefore be necessary to weaken the stain for these portions. This weakening of the stain applies to all varieties, i.e., water stains, oil stains, spirit stains or chemical stains. After the parts have been stained and

allowed to dry, the work should be given a coat of the undiluted brush polish and this polish will in due course be rubbed down with No. 0 or flour grade glasspaper. The second coat of brush polish will probably have to be slightly tinted with a spot of bismark brown aniline spirit stain, otherwise the ordinary brown polish will make the work look pale and muddy. Discretion will have to be used with regard to the amount of red or bismark aniline which is added to the polish, because it is of a fiery red tone and a little of it goes a long way. If you are a novice err rather by adding little, because you can increase the depth of the shade by giving the work an extra coat. Bring the work to a finish by plying a polishing rubber on it until a sufficient body of polish appears on the surface. To obtain a very bright glossy finish, charge the last polishing rubber with half polish and half glaze. Glaze is made by crushing gum benzoin and placing it in a wide-mouthed bottle, then pouring on to it sufficient methylated spirit to nicely cover it. Glaze should stand for a few days before it is used and should be strained through two thicknesses of butter muslin to remove the impurities before it is used. It improves with keeping.

Baywood and Mahogany.

FOR BAYWOOD which is to be stained with a bichromate of potash solution, the stain for the carvings will again have to be weakened. If the main portions of the baywood have been treated with red oil after staining, you should weaken a little of the red oil with turpentine (about half and half) and oil both the carvings and the ground with a pad of old flannel. This weakened red oil will give the necessary red tint to the ground and the carving to match the polished woodwork. Give two or three coats of polish to the carving and ground as previously described and finish with the polish rubber. An alternative treatment after staining and oiling the carving is to give it one coat of thin brush polish and then wax the raised parts of the carving. To wax the work take a twopenny stiff bristle nail brush of small size such as is used to scrub the fingers. Rub the bristles of this brush on to a piece of beeswax and then rub the brush on to the carving. In very cold weather the piece of wax may be slightly warmed but not melted. Repeated applications of the bristles to the wax and then to the carving will transfer sufficient wax on to the wood to enable the worker to obtain an eggshell gloss. In fact this is an excellent method for the treatment of either old or new carvings as it cleans, brightens and renovates them.

FOR REAL MAHOGANY of the Cuban or St. Domingo variety oil the carvings with a little raw linseed oil and then use repeated applications of the beeswax applied by the bristle brush. This dark and richly coloured wood seldom requires a red oil.

(Continued at foot of next page.)

HANGING NEWSPAPER TIDY

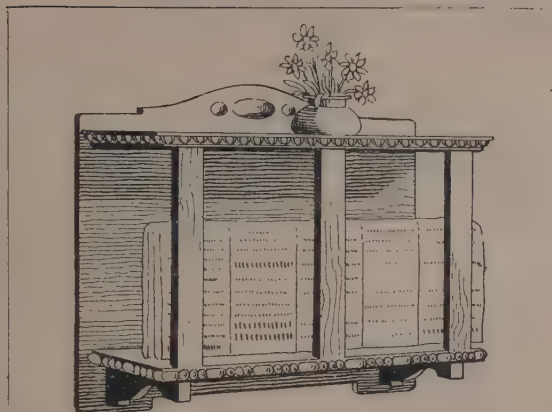
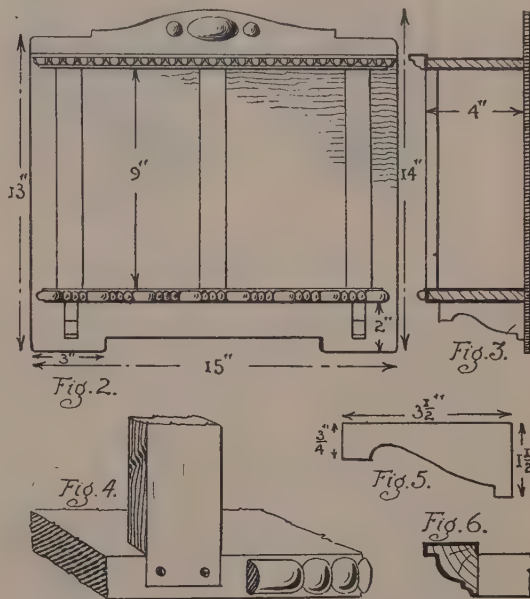


FIG. 1. NEWSPAPER TIDY, 15 INS. BY 14 INS.

THE sketch (Fig. 1) shows a newspaper tidy made with a plywood back to which are fitted two shelves joined at the front with three upright battens. The lower shelf is supported with two brackets, and the edges of both shelves are ornamented with moulding.

A piece of $\frac{1}{4}$ in. ply 1 ft. 3 ins. long by 1 ft. 2 ins. wide, shaped as at Fig. 2, is used for the back. The two shelves are 1 ft. 2 ins. long by 4 ins. wide by $\frac{1}{4}$ in. thick, and they are screwed through the back in positions as at Figs. 2 and 3. The upright battens are $9\frac{1}{2}$ ins. long by 1 in. wide by $\frac{1}{4}$ in. thick, and are let in flush with the edges of the shelves and nailed (Fig. 4), the middle batten being fixed exactly in the centre, and the end battens $\frac{1}{4}$ in. in from the ends of the shelves.

The brackets are cut from $\frac{1}{4}$ in. stuff to the pattern at Fig. 5, and are glued and nailed in place. Strips of $\frac{1}{4}$ in. egg and tongue pattern embossed moulding are mitred around the edges of the top shelf to stand slightly above the surface (Fig. 6), and strips of $\frac{1}{4}$ in. half-round turned moulding are fixed to the lower shelf. A Jacobean oval, size about 2 ins., and two buttons, size about $\frac{1}{4}$ in., could be fixed at the top of the back, (112)



FIGS. 2 TO 6. ELEVATION, SECTION AND DETAILS.

Polishing Notes

(Continued from previous page.)

AMERICAN BLACK WALNUT calls for a similar treatment of two parts of raw linseed oil to one of turpentine, then one coat of thin polish applied with the mop brush, after which friction polish it with the nail brush and the beeswax. Black walnut may be brought to a bright polished finish in a similar manner to satin walnut. In special cases where black walnut appears to be pale and somewhat devoid of colour it is advisable to oil the carving and the ground with a red oil instead of the raw linseed oil. Red oil is made by bruising alkanut root and soaking it in raw linseed oil for from two to three days. Twopennyworth of alkanut root to the pint of oil will give quite a nice tint. It may, of course be weakened if desired by the addition of more raw linseed oil.

GOLDEN OAK CARVINGS should be stained with the weakened stain, after which they may be bright polished as satin walnut, or waxed as in the mahogany treatment. Jacobean oak carvings

and frets are stained and worked up with polish or spirit varnish, after which they may be dulled with a stiff brush, the bristles of which are dipped into dry finely powdered emery from time to time as the work proceeds. To obtain that worn and antique appearance on new Jacobean work simply rub the work after the stain has dried with No. 0 or No. 1 glasspaper until you have cut through the stained surface. If any of the portions of polished carved work appear too bright to please your artistic eye wipe over the bright portions repeatedly with a swab of pure American turpentine. The turpentine application twice a day for a week will effectively dull the finish. Do not use a beeswax and turpentine compound on new carving. (137).

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THE HANDICRAFT CENTRE

MAKING A REVOLVING BOOKCASE

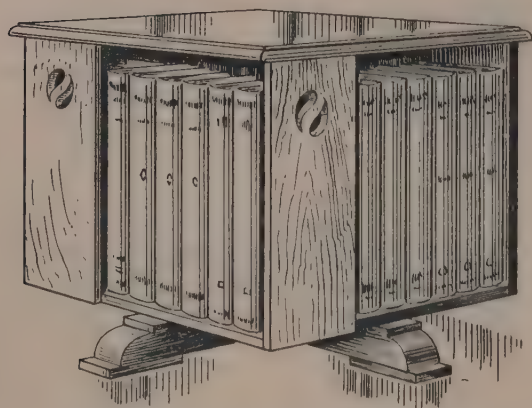


FIG. 1.—TABLE REVOLVING BOOKCASE.
HEIGHT, 12½ IN. SIZE OVER TOP, 14 INS.

THE bookcase depicted in the drawings is very simple to construct and well within the capabilities of the amateur woodworker. It can, moreover, be made with the minimum kit of tools.

It will be seen that the stand consists of a cross halving joint (Fig. 7) having a standard (preferably of hardwood) fastened to it by a "joggle joint" (Fig. 5). The length of the standard cannot be given exactly since it depends upon the size of the ball-bearing, and care should be taken to ensure that it is long enough to allow of a clearance of approximately ¼ in. between the base and the suspended top carcass. The standard is counter-sunk at the top to receive the steel ball-bearing of approximately ¾ in. diameter. This can be obtained from most garages (Fig. 6).

A box is next constructed to fit round the stan-

dard with a fine clearance. To the top of the box is fastened a wooden collar of ½ in. by ½ in. material. This is to fix the box to the top by means of glue and screws (Fig. 6).

Fig. 4 shows the mitred battens which not only stiffen the top but at the same time form a rebate to which the laths or panels are fastened. The mild steel plate (A) should be slightly counter-sunk in the centre, thus assisting in keeping the top suspended centrally on the ball-bearing, at the same time forming a hard wearing surface.

The bookcase looks quite well when constructed of canary (American whitewood) and stained and polished to represent mahogany or walnut. The more ambitious worker could replace the lath method shown in elevation and plan by the more elaborate panels. Should any of these be selected it would be much better to work throughout in either mahogany or oak.

Fig. 8 (A) shows a panel with simple stringing or banding inserted. This is quite a simple decoration if the cutting gauge and scratch stock be resorted to. At (B) is an even more simple adornment, it being a narrow band of Indian ink put on with either brush or pen, the former for preference. The panel should be treated with glue-size to prevent the ink from running into the grain. When dry the panel may be either wax or french polished and the finished effect will resemble the stringing method described previously.

Panel (C) consists of a design run round with the carving "V" tool and the background punched down with the matting punch. The latter can be made by filing a series of cuts (with the triangular file) across the cross section of a 6 in. nail. This gives the design in low relief. The next panel (D) is an interlaced design which may be more boldly treated and looks well when

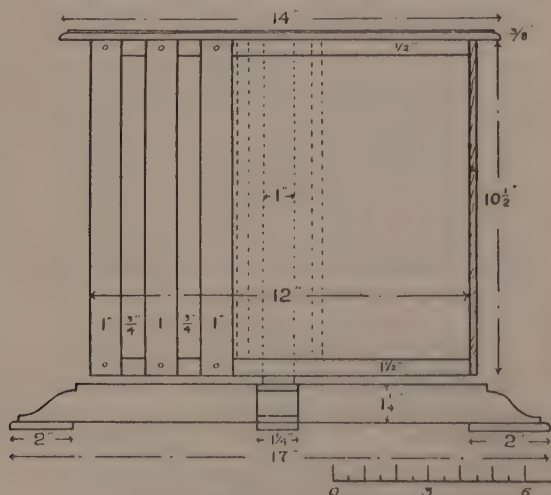


FIG. 2.—DIMENSIONED ELEVATION.

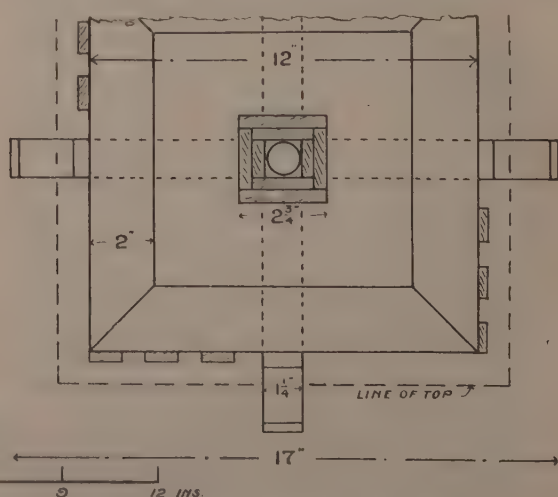


FIG. 3.—PLAN, SHOWING FEET, ETC.

FIG. 4.—MITRED BATTENS

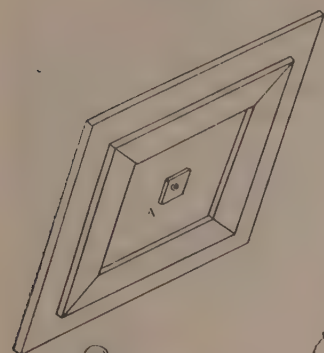


FIG. 5.—JOGGLE JOINT.

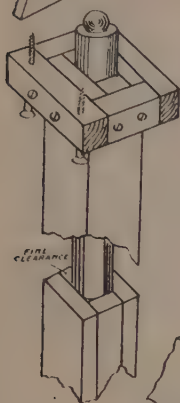
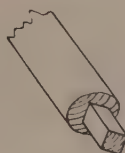
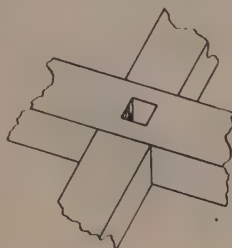
FIG. 6.—
THE BOX.

FIG. 7.—CROSS HALVING.

worked in oak. The background may be sunk in a matter of $\frac{1}{8}$ in.

Pierced panels are not so much in favour as formerly, but the one illustrated in E is effective and is quite artistic if care be taken with the size and position of the fret. It will be observed that it is purposely kept out of the centre of the panel—the ideal position being approximately $\frac{2}{3}$ in. the distance from the top (see also Fig. 11).

Should one wish to attempt inlay, the design illustrated at F is quite suitable and looks well when worked in box or sycamore in mahogany. Those not having the courage to attempt this might try cutting the design and filling in with sealing wax, care being taken to size the wood before running in the wax. When set the wax

Snakewood is a choice tropical timber produced chiefly in Brazil and confined in use entirely to the walking-stick trade. Occasionally we find it called "leopard" wood. Its features are a dark chocolate brown colour, richly marked with small patches of darker brown which leads to some resemblance of the skin of a snake. It is exceedingly hard and heavy, and only obtainable in short lengths. In consequence of this it is rare and usually realises a high price.

FOR A NEW FLOOR the following stain may be

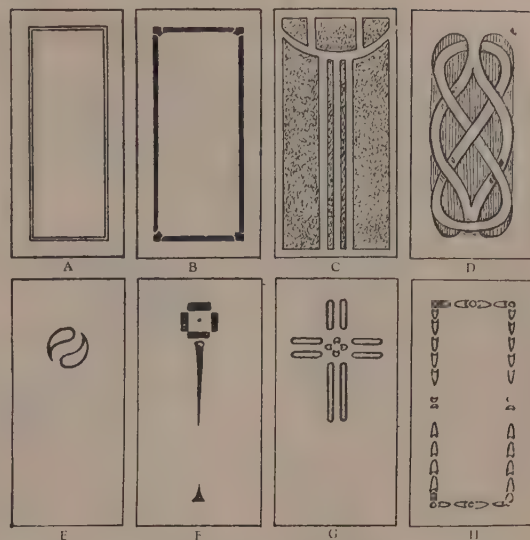


FIG. 8.—ALTERNATIVE SUGGESTIONS FOR PANELS.

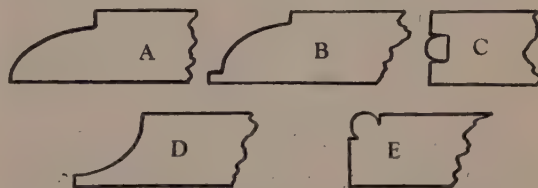


FIG. 9.—ALTERNATIVE MOULDINGS FOR TOP.

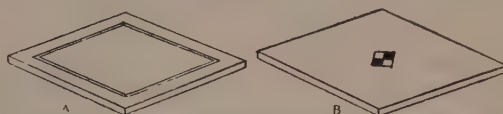


FIG. 10.—ALTERNATIVE TREATMENTS FOR TOP.

should be scraped and treated with fine glass-paper, then finally waxed or french polished.

Artistic and effective panels may be made by the application of simple gouge cuts, two of which are shown at J and H.

Sketches 9, A, B, C, D, E give alternative treatments of the edges of the top, while Fig. 10, A and B show stringing and inlay as alternatives for the enrichment of the top surface. (231)

used if a walnut colour is desired. Mix vandyke crystals in warm water and add $\frac{1}{2}$ oz. of ammonia to one pint of the mixture; then add a tablespoonful of hot liquid glue and use the stain warm. With a 3 in. or 4 in. flat bristle brush begin the staining near the skirting board and work with the grain of the wood, taking care to keep a flowing edge on the stain. When the floor is thoroughly dry (say, 24 to 36 hours), give the work a coat of church oak varnish. When this is hard (after four days) the floor may be wax polished.

HINTS ON THE BEVEL CUT

HOW THE BEVELS ARE OBTAINED FOR SPLAYED CORNERS

THE illustration at Fig. 1 shows a simple knife-box, the sides and ends of which are splayed or bevelled outwards. The long sides are nailed to the end pieces, the bottom board having a rounded edge, and an overhang of half an inch. This bottom board is glued and screwed to the box portion. The centre partition has a hand hole which may be bored and pared up to the suggested shape, the ends of the partition being housed into the box portion for half the thickness of the timber. In fact the whole of the construction, with the exception of obtaining the requisite angles or bevel cuts, is of the simplest character and this is the reason why it has been chosen as an introduction to the finding of the face angles and bevel cuts. The box may be made to any sizes according to preference, but as a general hint we give the over-all sizes of 15 ins. by 8½ ins. by 3 ins.

The first step after deciding on the sizes of the box is to determine the bevel or splay of the sides. This angle may be selected by the worker, paying due consideration to the general appearance of the completed box. Say he selects 70 degrees. He should set out the work full size as at Fig. 4, and show the actual thickness of the wood he intends to use on the drawing as at T. This will show him what actual width his wood will have to be got out when its edges are square to the face side.

Now turn to Fig. 2, which shows the elevation and plan of the box in detail, and notice that in this case we have increased the thickness of the wood and bevelled the sides to a greater extent than is shown at Fig. 4. This has been done to show the development of the sides more pronouncedly than would be the case if we used the thinner wood and greater angle of 70 degrees as at Fig. 4. Note that in all these drawings the face mark (somewhat like a glorified comma) and the edge mark (which is denoted by a X) have been shown as far as possible.

Draw an elevation of your box to your selected angle as we show it at Fig. 2, and begin to develop it to find your angles. You will first of all have to draw a plan of the box immediately under your elevation and, when this has been done, place your compass point on C in the elevation and draw the dotted arc D until it cuts the horizontal line E. From the point where E and D cut each other, drop the vertical line down the side of the plan. We have now turned the side shown flat at the right hand of the elevation, which will of course show us its true and correct width in

the plan as denoted by the boundary line E and F. But turning the side into its flat position does not alter its over-all length, and so if we produce the lines of the edges of the box (G and H) until they cut the line E, F, it gives us a point K.

Join K to J and this will give us the real angle of the joint on the inside of the box. Take your joiner's adjustable bevel and set it to this angle B. Then place it on the piece of prepared wood (Fig. 3) and mark the angle of the joint on the inside of the box. Mark all the four pieces to this angle and to the lengths you desire.

The next step is to find the angle of the joint on the edge, and this is developed on the left-hand side of the drawing (Fig. 2). With your compasses turn up the edge L until it is horizontal as at M, and then drop the vertical line M-N. Carry this line round the plan as shown

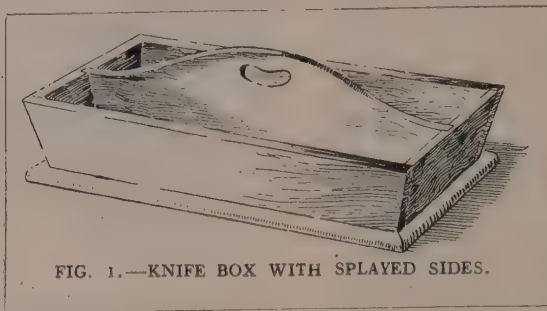


FIG. 1.—KNIFE BOX WITH SPLAYED SIDES.

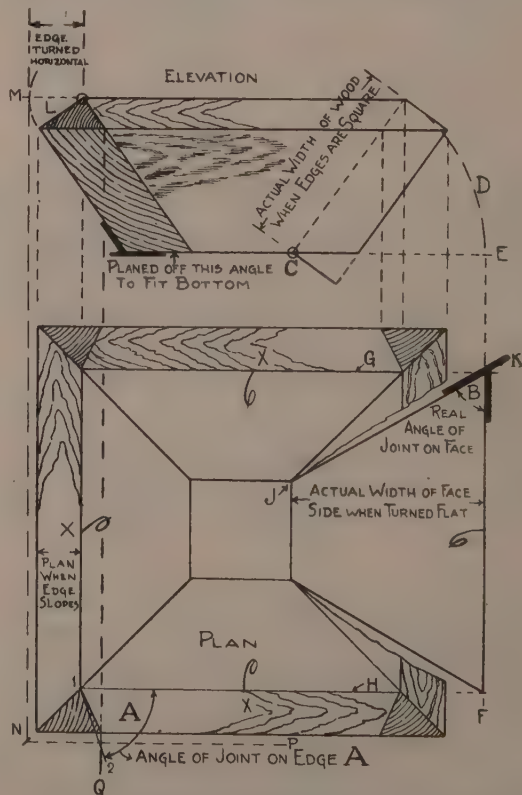


FIG. 2.—DETAILED ELEVATION AND PLAN OF BOX WITH SPLAYED SIDES.

by N-P. Next drop a vertical line Q from the elevation as shown, and draw line 1, 2, to the point where the lines cross. This will give you the angle A, which is of course the angle of the joint on the edge A. This angle A is now transferred to the joiner's bevel and the top edges of the box are marked out as at Fig. 5. In Figs. 3 and 5 the bottom edges have been planed away so as to fit the box bottom, and this angle is shown by the heavy bevel mark at the left-hand of elevation (Fig. 2). This angle may be planed away immediately after you have worked the timber to its exact width and thickness, and be-

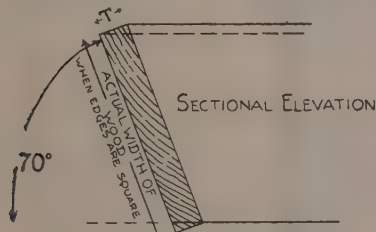


FIG. 4.—ELEVATION, SHOWING WIDTH AND THICKNESS OF SIDE.

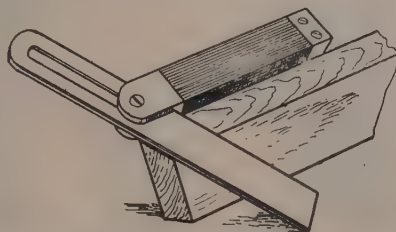


FIG. 5.—MARKING TOP EDGE TO CORRECT BEVEL.

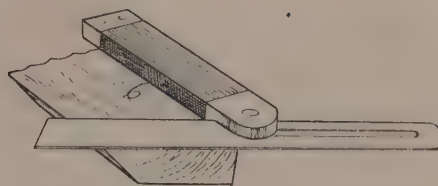
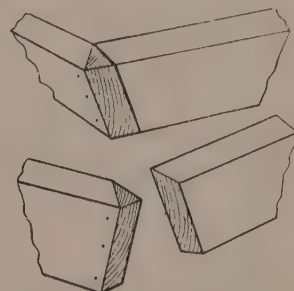


FIG. 3.—MARKING FACE AT REQUIRED ANGLE.



FIGS. 6 AND 7.—CORNER JOINTS NAILED AND SEPARATED.

fore you begin to mark your bevel cuts on the work. At Fig. 6 is shown a sketch of one corner of the box as it appears when nailed together, and it will be seen that none of the angles of the joints are right angles, thus proving the necessity of the development. At Fig. 7 we show the same two pieces of wood separated. The same bevel cuts and face angles would answer if the box had to be through-dovetailed, but of course the thickness of the two side pieces would have to be added to the length of the cross pieces or ends, to allow

a sufficient length for the dovetails to come through.

Suitable wood for the construction of a knife box would be half an inch thick. Those of our readers who have had difficulties with bevelled cuts are particularly asked to work out a small model of one corner of a box using wood not less than $\frac{3}{4}$ in. thickness. They will then easily be able to follow the methods of the lay-out and find the correct bevel cuts. (228)

VARIOUS WILLOWS AND THEIR USES

AMONG the innumerable varieties of willows that exist, from osiers and lower forms, that known as the Huntington willow is the kind that is most readily recognised, as it attains a fair height, and has a widely extended branching habit. The leaves are of silver grey on the undersides, visible when stirred by the wind. The wood is of light greyish yellow colour, light in weight and not unlike poplar in its non-splitting qualities, and may be used for similar purposes. For the best grown wood, however, there is a ready demand for the making of cricket bats, its light weight, tenacious texture and unsplitable qualities making it an ideal wood for this purpose. There is, however, a further variety that is even more esteemed for this purpose. This is said to be a hybrid between the Huntington and the crack willow. Its growth is similar to the first-named, with the exception that its branches have an upward tendency in their growth. It may, however, be more readily recognised by its bark, which is of a grey colour with long straight fissures, and the term "close barked" is generally applied to this much sought after variety.

OF CRACK WILLOW there are many sub-varieties. It is essentially a water-side growth and with its

long root action is a helpful tree in retaining the banks or edges of watercourses. The basket makers are the chief consumers of this growth, which are more often than not pollarded, and the shoots removed at intervals. The timber, moreover, is also useful for many miscellaneous purposes. It is of rather pinkish colour, and may be distinguished from other varieties by this feature.

BEDFORD WILLOW yields a timber that is tough, rather elastic, and adapted for cart bottoms, and especially for flooring where there is constant traffic. It is also used, with other varieties, for the manufacture of wooden limbs and splints and similar work. The tree, unlike the crack willow, succeeds best in good loamy land, away from water-logged river banks.

GOAT WILLOW is very similar to the foregoing, thriving best in like situations, the timber being used for much the same purposes, as well as for making hoops and handles. It is moderately tough and fairly elastic. (220)

"TIMBERS FOR WOODWORK," hardwood and softwoods, 3/6 net.—Evans Bros., Ltd., Montague House, Russell Square, W.C.1.

A FOLDING BOOKCASE BED

THE combination bookcase-bed shown at Fig. 1 should be especially useful to many living under present-day conditions. To the casual observer the piece is just an ordinary bookcase, nothing of the bed being seen when it stands against the wall, but by simply moving the case from the wall a 6 ft. by 2 ft. 6 in. folding bed is revealed. Anyone living in a small house or flat, or who has not a spare bedroom, will find this very handy for accommodating the casual or weekend visitor, or a young member of the family. The bookcase has six shelves and a cupboard, and the latter would be found most convenient to hold a couple of pillows and a supply of bed linen.

The piece is neither difficult nor costly to make in any of the usual cabinet woods, of which oak is, perhaps, the most suitable. The following cutting list gives the amount of material required in finished sizes:—

	Long. ft. in.	Wide. in.	Thick. in.
A Two sides	6 0	12	$\frac{3}{4}$
B Two shaped pieces	0 8	2	$\frac{3}{4}$
C Six shelves	2 7 $\frac{1}{2}$	7 $\frac{1}{2}$	$\frac{3}{4}$
D Shaped rail	2 7	3	$\frac{1}{2}$
E Back (plywood)	6 1 $\frac{1}{2}$	31	6 m m
F Two bearers	1 3	2	$\frac{3}{4}$
G Four door stiles	2 0	1 $\frac{1}{2}$	$\frac{3}{4}$
H Four door rails...	1 3	2	$\frac{3}{4}$
I Two panels (ply)	1 9	13	6 m m
J Two sides of bed	6 0	2 $\frac{1}{2}$	1 $\frac{1}{2}$
K Top cross rail ...	2 6	9	1
L Bottom cross rail	2 6	2 $\frac{1}{2}$	1 $\frac{1}{2}$
M Two legs	1 6	1 $\frac{1}{2}$	$\frac{3}{4}$
N Cross rail	2 4	2	$\frac{3}{4}$

18 ft. of fretted or waved moulding for edges of shelves and top of sides, 12 ft. of $\frac{1}{4}$ in. quarter-round turned beading for edges of doors, 3 ft. of $\frac{1}{4}$ in. half-round beading for top of back, and two frets about 6 in. by 4 in.

THE CONSTRUCTION is carried out as follows. The shelves are dovetail-grooved into the sides (see Fig. 4), and the plywood back is grooved into the sides immediately behind the shelves (see Fig. 5). When fixing the parts up, the plywood back should first be fitted into the sides and the top and bottom shelves are then driven in from the front, after which the remaining shelves are fixed. The back finishes level with the top and

bottom end of the sides, and the top edge rises $1\frac{1}{4}$ in. in the middle and is rounded. The back is nailed or screwed to the back edges of the shelves, and pins are also driven in a slanting direction through the back into the sides, as at Fig. 5. The shaped pieces at the bottom of the sides are prepared as at Fig. 6, and are dowelled or glued and pinned to the edges of the sides, while the shaped bottom rail is grooved up into



FIG. 1.—2 FT. 8 IN. BOOKCASE, CONVERTIBLE INTO A SERVICEABLE OCCASIONAL BEDSTEAD.

the sides, and glue blocked to the bottom shelf. A $\frac{1}{4}$ in. chamfer should be worked around the front and side edges of the bearers.

THE DOORS are framed up in the usual way, the rails being tenoned into the stiles, and the frames rebated to receive the panels. The frames could be left quite plain, but the appearance would be greatly improved by fitting slips, $\frac{1}{4}$ in. wide, on the face of the panels to form the shape shown at Fig. 2, and finishing the edges with $\frac{1}{4}$ in. quarter-round turned beading. The meeting edges of the doors are rebated together, and the doors are hung and fitted with bolts and a lock and key.

Before the bed frame is put in hand some consideration must be given to the fittings (O) by means of which the frame is attached to the sides of the bookcase. The fittings, one of which is shown separately at Fig. 7, may be easily made from pieces of iron, 8 in. long by 2 in. wide by $\frac{1}{4}$ in. thick, bored for four countersunk screws, and having a $\frac{3}{8}$ in. bolt fitted through the centre. The bolt should be about 2 in. long with a square section under the head. This is fitted tightly into the plate, and when the fittings are fixed to the sides small recesses should be cut for the heads of the bolts. If desired, the fittings may be made from $\frac{1}{4}$ in. hardwood instead of $\frac{1}{4}$ in. plate, the bolts in this case being 2 $\frac{1}{2}$ in. long. The fittings should be temporarily fixed to the sides so that the correct width for the bed frame may be obtained.

THE TOP CROSS RAIL of the bed frame is dovetail-lapped to the side rails and screwed, the lapped portions at the ends of the cross rail being $\frac{3}{4}$ in. thick. The bottom cross rail is tenoned in and fixed with wood pins (Fig. 8). Slots are cut in the side rails, as in Figs. 3 and 9, to allow the frame to be attached to the fittings on the sides of the bookcase. The ends of the side rails are rounded, and the slots must be long enough

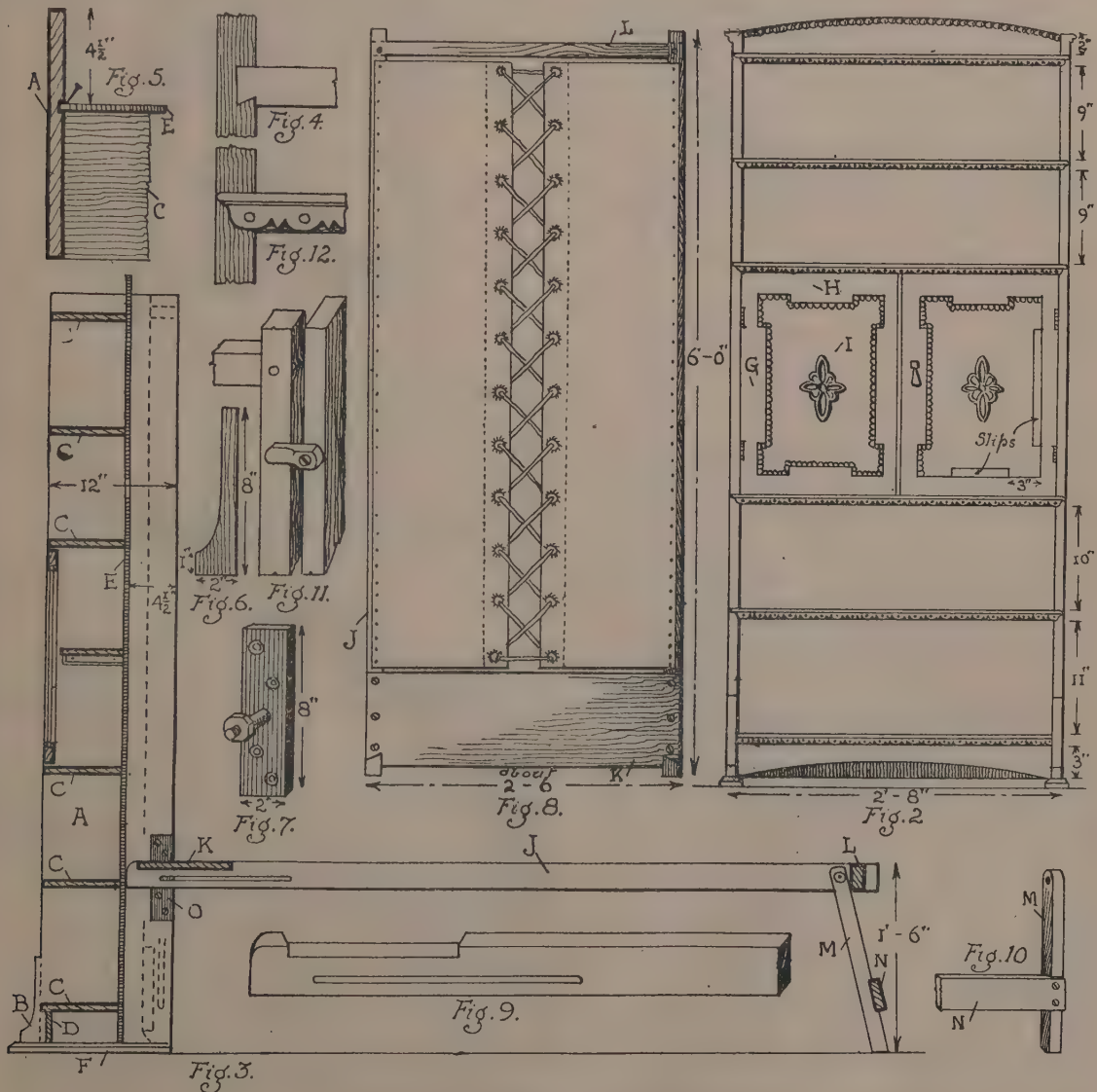
to allow the bed frame to be folded up against the back of the bookcase, as shown by the dotted lines in Fig. 3. The frame rests on a pair of legs at the front, which are joined by a cross rail lapped and screwed into them (Figs. 3 and 10), the legs being attached to the side rails of the frame with rivets to fold flat.

A CANVAS MATTRESS could be made as shown at Fig. 8. Fairly stout canvas should be used, hems about 3 in. wide being turned at the inside edges, and metal eyelets fixed, or eyelet holes worked to receive the rope by means of which the mattress is drawn taut. The outer edges are doubled and tacked to the side rails. For a wire mattress, see article on that subject on page

192 of THE WOODWORKER for June, 1928.

A thin wool or hair mattress will, perhaps, be used on a bed of this kind, and on referring to the section at Fig. 3 it will be apparent that there is ample space to allow both bed frame and mattress to be folded into the back of the bookcase. The mattress should be tied to the frame at the corners, and when the frame is folded it should be held in place with a couple of buttons fixed to the back edges of the sides, as at Fig. 11.

To complete the work the fretted or wave mouldings are fixed to the edges of the shelves, the ends being finished as shown at Fig. 12, and the frets are fixed to the door panels. (219)



FIGS. 2 TO 12.—DETAILS OF BOOKCASE BEDSTEAD.

THE QUESTION BOX

QUESTIONS only of general interest can be answered in these columns. Readers will kindly note:—(1) Detailed replies or sketches cannot under any circumstances be sent by post; but, as the Editor may require further information, a stamped addressed envelope should be enclosed. (2) Full particulars of what is required should be clearly stated, and (if possible) a rough sketch with over-all sizes enclosed. (3) Questions of purely personal interest cannot be dealt with in these columns.

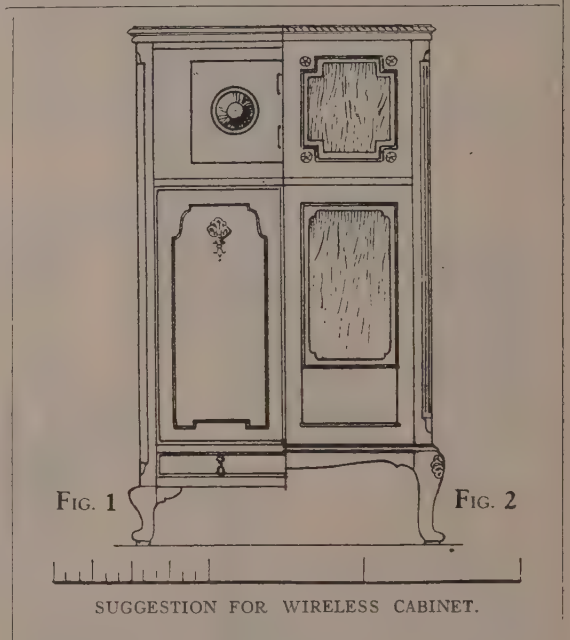
NOTE.—With each Query must be sent a Coupon (see foot of page iv. of cover). All queries to be addressed: Editor, THE WOODWORKER, Montague House, Russell Square, London, W.C.1.

Wireless Cabinet

E. M. (Blackpool) wishes to make a mahogany wireless cabinet on cabriole legs, allowing accommodation for wireless papers.

REPLY.—We offer you alternative suggestions for the cabinet, noting that the fret-work front for speaker which you wish to use measures 20 in. by 20 in., and that the ebonite front or panel of the set measures 14 in. by 8 in. This will work out favourably, but, if provision must also be made for the placing of a few wireless papers, the dimensions you stipulate over all, namely 3 ft. 4 in. high, will allow but little over 4 in. for the legs. The part-suggestion at Fig. 1 is worked out full to the height you require, and you will note that a drawer below is provided for the papers, extending the full width of the cabinet although only about 2½ in. high. You do not state in your letter whether you wish to enclose your fretwork front with doors. If so the suggestion at Fig. 1 might be followed. Such a door could be of ¾ in. or ⅝ in. thickness as preferred, framed up of 1½ in. stiles, a shaped top rail 4 in. wide and a bottom rail 2½ in. wide, the latter being also shaped and the whole mortised and tenoned together with a ⅝ in. or 5 mm. plywood panel rebated in and beaded from the back. Relief is obtained by mounting a Queen Anne shell with husks. The posts are 1½ in. by 1½ in. net, relieved by angle chamfers which may either be plain or finished with three flutes. The table top may be of ⅝ in. thickness, hinged in centre to open up for access to fittings. This lid will shut down upon a rim of ⅝ in. thickness, mitred up to form a capping under which a 1½ in. by ⅝ in. rail will be dovetailed to posts. The rails top and bottom of drawer can be tenoned to posts with side and back rails fitted to form frames, and the carcass back rebated into position and screwed.

We would suggest, alternatively, that, in arranging for the storage of batteries, a door should be fitted to the carcass back for access so that papers could be kept therein and the drawer omitted altogether. This would afford an opportunity of introducing legs a full 7 in. high, and in consequence a lighter and somewhat more graceful article would be obtained, as in Fig. 2. In this case it will be noted that both the upper panel and the lower speaker are enclosed by separate pairs of doors, the upper pair being neatly moulded with broken corners and pateras. The lower door has an applied panel with shaped corners of Queen Anne type, with the opening moulded ½ in. ovolo and an applied panel below this showing about 7½ in. by 4½ in. mounted with a bead finish top and bottom. The cabriole legs



here are mounted with a shell, and a shaped apron piece takes the place of the short wing pieces of Fig. 1, the parts being tenoned together. (213).

A Faulty Plane

E. C. K. (New Jersey) says that his plane will not cut when using the shooting board although the same plane functions properly when the wood is held in the vice.

REPLY.—The stock of a wooden plane frequently dries in and becomes warped, and if left for a time in a damp shed it will swell. This causes the sole and the side of the plane stock to assume such a position that they are not at right angles to each other. Test your plane with a try square and, if it is not true, recondition the stock by slightly planing the side which comes into contact with your shooting board until the sole and the side are at right angles. You will probably find that this is the cause of your trouble. Test also your shooting board to see if the edge of the upper deck is at right angles to the face of the lower deck. Either the stock of the plane or the shooting board is faulty if the former functions properly when planing in the orthodox manner. (203)

Polishing Grey Sycamore Veneer

R. P. (Bromley) has polished some grey sycamore veneered work and finds that the surface shows a slight dirty yellow tint. The grain was filled with whitening and linseed oil.

REPLY.—The grain filler would have been more satisfactory if you had tinted it to the colour of the grey sycamore with a touch of aniline dye. The yellow cast is probably caused by using polish made from an orange shellac. On your next job use a polish made from a bleached shellac and tint it with spirit aniline dye to a slightly lighter shade than the dyed sycamore. You might try rubbing down the existing work slightly and then re-bodying with a tinted grey polish. We have frequently pointed out that these dyed grey sycamore veneers always fade to a dirty light brown in the course of three or four years. Lavender, grey and blues are the most fugitive colours in nearly all dyed materials. (215)

Box Ottoman

W. E. S. (Andover) asks for advice on the construction of a box ottoman, head and lid spring-stuffed, without back.

REPLY.—We offer a sketch at Fig. 1, dimensions over all being 6 ft. 6 in. by 2 ft. 6 in. back to front. An elevation of the framework is given at Fig. 2, the part being mapped out in 2 in. by 2 in. squares to facilitate the making of a full size set-out. From this you will note that the frame forming the lid and seat is 3 in. high, to be constructed of 1 in. board throughout, and with centre stretcher dovetailed into the under edges of sides and screwed. The box itself can be made up of 1 in. floor boards, grooved and tongued together, and may be dovetailed for a good job, but is more often in cheap work put together by means of battens set back to the thickness of the box ends and nailed into position as at Fig. 3, so that the ends can butt tightly between the longer sides and bed solidly upon the battens ready for screwing or nailing. A bottom of $\frac{1}{4}$ in. thickness or thereabouts can then be nailed into position and 3 in. by 3 in. by 1 in. blocks screwed or nailed under the angles of bottom as a thickening for castors. A sketch showing the head framing forming the scroll and with stuffing rails is shown at Fig. 4, the lower part being stiffened by a rail from shaping to shaping. Whilst the shaping of scroll is indicated as for Fig. 1, it should be noted that the scroll gives the particular character to the ottoman and frequently varies in shaping, in some cases after the manner of Figs. 5 and 6, which offer a margin for individual choice. These scroll shapings would be of 1 in. thickness and doweled to the edges of the box portion, in addition to which they might be screwed to the battens which hold the box together and are prolonged so that they can be cut away as required by the particular shaping adopted. In fitting the lid sufficient space should be left to admit the finishing thickness of the bottom portion of the

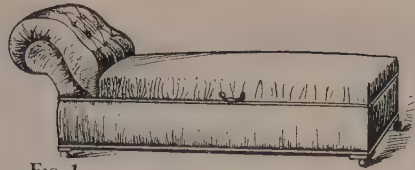


Fig. 1

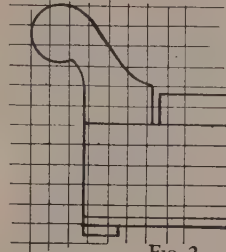


Fig. 2

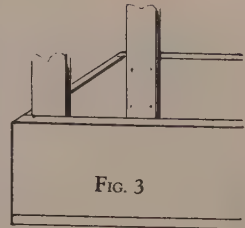


Fig. 3

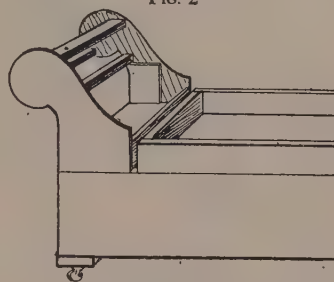


Fig. 4

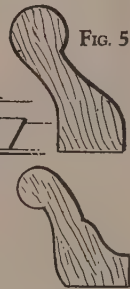


Fig. 5

Fig. 6

DETAILS OF BOX OTTOMAN.

scroll when upholstered, and this lid can be made as a tray if desired and hinged to the box with brass butt hinges. The lid may be fitted with extra stretchers or battens upon which the springs can be secured and lashed down in the usual manner, or the lid frame may be cross-webbed for spring attachment if this method is preferred.

In stuffing, the springs would be covered with scrym, above which the filling may be of wool, fibre, flock or hair, or a mixture of these. The final covering may be of a good quality cretonne, or preferably a repp, which can be had in a wide range of colourings and wears well. We would suggest that you button the scroll head even if you leave the seat plain, whilst it is also an advantage to fit either a loop or brass handle to the centre of front of lid for lifting purposes. The interior of box may be lined with green or brown sateen, whilst the bottom of lid is usually covered with black canvas as a finish. (218)

CABINET DESIGNS.—*Revised edition.* Includes gramophone cabinets of pedestal and horizontal type, combined gramophone and wireless cabinet, china and display cabinets in Jacobean, Queen Anne and other styles, corner cabinet, sideboard cabinet, bedroom, medicine, smoker's and writing cabinets, curio cabinet, kitchen cabinets, etc. Crown 4to., 48 pages, 2s. 6d. net. Evans Bros., Ltd., Montague House, Russell Square, W.C.1.

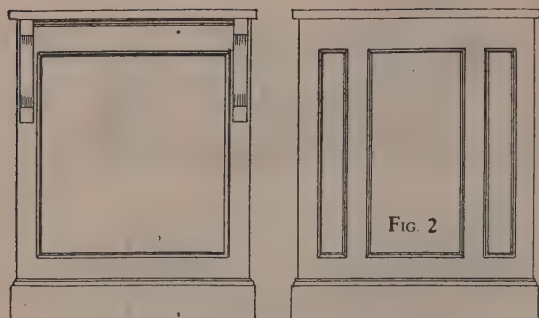


FIG. 1

FIG. 2

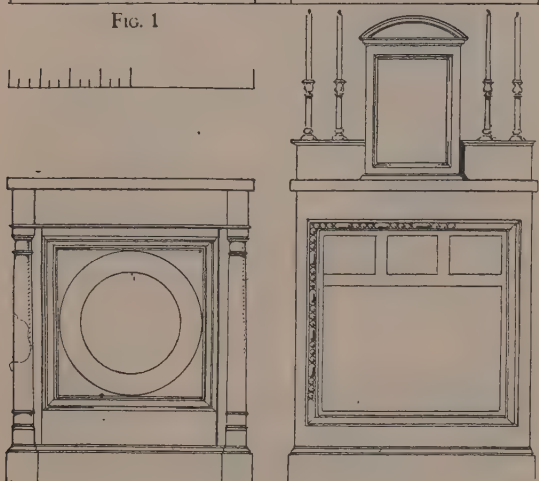


FIG. 3

FIG. 4

SUGGESTED DESIGN FOR A MODEL ALTAR.

Model Altar

A. W. (Dublin) wishes to make a model Catholic altar, about 2 ft. 6 ins. high by 2 ft.

REPLY.—From the wording of your inquiry we are not quite sure whether you wish to construct a model altar that is the replica on a reduced scale of an actual altar such as is erected in a church, or whether you wish to make an altar that could be used in the home as a shrine. We therefore offer several suggestions to your own sizes suitable for the latter use.

If the construction is to be of the simplest kind it might take the form of the front elevation (Fig. 1). The altar will be framed up of 2 in. by 2 in. corner posts, into which a top rail 4 in. wide, and a bottom rail 6 in. wide will be tenoned and pegged to form a panel which would be about square. The ends might be panelled to agree, keeping the rails in line. The top might project 3 in. at front and 1 in. at ends, and as seen would be supported by two truss brackets on face shaped ogee, having a height of about 10 ins. and using $1\frac{1}{2}$ in. stuff for this purpose. The rails might be of $\frac{3}{4}$ in. net thickness. The table top would be of full 1 in. thickness with a lining mould beneath to butt up to brackets. The plinth

might be of 4 in. height, made up of $\frac{3}{4}$ in. net thickness boards, mitred at angles and screwed into position on face front and ends.

In Fig. 2 the brackets are omitted and the face panelling is split up into three, but otherwise it is of the same simple construction as Fig. 1. Fig. 3 would work out rather more elaborately, having the top with a wide rail more in the form of a frieze, to be supported by a pair of full 2 in. diameter columns, which would break forward on the base or plinth and also above. Between these a square panel might have a surround of $1\frac{1}{4}$ in. section mould, and the panel itself might have an applied circle of plywood introduced, as is sometimes done, forming an emblem of Eternity. Fig. 4 might be put together by frames, the front being shown with a square panel carrying about $1\frac{1}{4}$ in. section mould which might be relieved by the introduction of a pearl-and-bead detail member of $\frac{1}{2}$ in. section.

If it is required to introduce a tabernacle above the altar table, and a riser for the placing of candlesticks, the latter might proportionately be about 4 in. high, whilst the tabernacle itself might be about 15 in. high by 9 in. wide over all. The tabernacle would be put together as an ordinary box by dovetailing or nailing, with a door moulded and hinged with brass butts, a $\frac{1}{4}$ in. section being used for the cornice and surmounted by a pediment a full 2 in. high. The riser might be of $\frac{3}{4}$ in. board, mitred at ends and glue-blocked behind, and its top glued and nailed on with a three-member mould as a finish. (212)

Wood Stoppers

J. J. (Burnley) asks for advice on wood stoppers.

REPLY.—Good work should not need nails and the consequent filling up of the nail holes, although there are jobs, such as repairs, where nails are permissible. You state that you filled up your nail holes with a putty made of whiting and linseed oil, and after using a water stain found that the stain had not taken on or around the greasy putty. Painter's putty is satisfactory as a stopping if paint is to be used on top, but for polishing it is a failure. If you are going to use a water stain, fill up the holes with plaster of paris mixed with water and, when hard, glass-paper the surface level and stain. Plaster of paris mixed with half and half methylated spirits and french polish will fill up nail holes and will take a spirit stain or wood dye. Plastic wood should be coloured with a spirit dye before you use it for stopping defects. If you use the self-coloured plastic wood and colour it up afterwards with a spirit dye it has a tendency to "pick up" during the polishing processes. Beaumontage does not take a dyed polish very kindly and therefore the mixture should be brought to the exact shade of the finished work when it is mixed. Speaking broadly, plaster of paris mixed with water is fairly satisfactory for water stains and spirit stains. (216)

Linen Chest

T. G. D. (Barnsley) wishes to make a linen chest to match the compact oak bedroom suite which was described in *THE WOODWORKER* (October to December) last year.

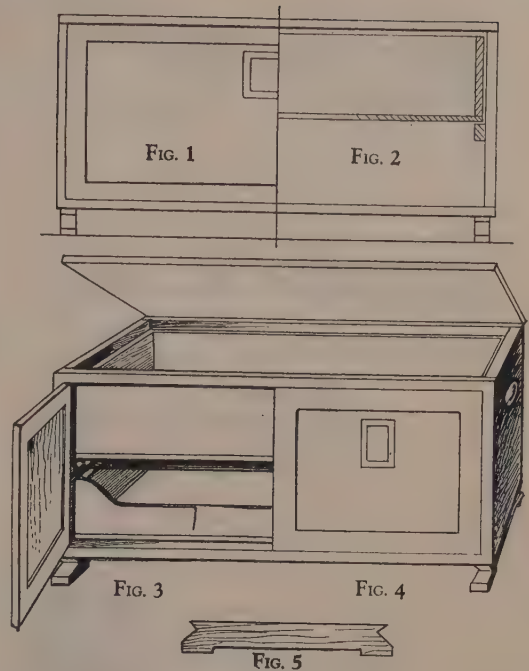
REPLY.—We are not quite clear from your letter whether you wish to make a linen chest in the form of a two-drawer casing, each drawer of which shall be 8 in. deep, or whether it is to be made in the form of the old type of dowry chest and fitted with a lift-out tray 8 in. deep, so leaving a space about 8 in. deep clear beneath it and forming the two "wells" mentioned in your enquiry.

If to be fitted with two 8 in. drawers, the casing itself for the size you require, viz., 3 ft. 6 in. long by 20 in. wide by 21 in. high, would be of $\frac{7}{8}$ in. net thickness top, bottom and ends, with a $\frac{3}{8}$ in. back rebated in for a good piece of work. Drawer fronts would be of $\frac{7}{8}$ in. thickness, sides and backs of $\frac{3}{8}$ in. thickness, bottoms $\frac{1}{4}$ in. thick to be fitted with a centre mullion, the whole to stand upon blocks or risers.

As a dowry chest in oak the sides, back and front had best be dovetailed together and the lid either clamped or flush panelled up of $\frac{3}{4}$ in. or $\frac{7}{8}$ in. thickness and hinged with three brass butt hinges. As a matching effect the front might be faced with 1 in. by $\frac{1}{2}$ in. lath and the lid made to project over the sides to this extent so that a slight but sufficient finger hold for raising the lid is obtained at Fig. 1. On face the framed detail forming a feature of the suite referred to might be introduced in centre as indicated, and the whole raised upon blocks as at Fig. 5, these being cut to finish 3 in. high by $1\frac{1}{2}$ in. thick. The interior of chest (Fig. 2) would have a tray of $\frac{3}{8}$ in. sides dovetailed together with a $\frac{3}{8}$ in. bottom screwed on, the whole to rest upon $1\frac{1}{2}$ in. by $\frac{3}{4}$ in. ledges screwed to sides and ends for the purpose. The tray sides could be fitted with sling loops for hand hold when lifting out.

The chest might be constructed in a somewhat different way by fitting a couple of trays, the top one lifting out as before and the lower tray loose to pull forward like a drawer. The latter tray in this case would be fitted with a shaped tray. The front of chest would then be enclosed by two doors, a top front stretcher rail being dovetailed into sides and so completing with the bottom a surround into which the doors would be fitted. These doors would be framed up of 2 in. by $\frac{7}{8}$ in. thickness stiles and rails with $\frac{1}{4}$ in. panels grooved in, and the small framed facings might be centred upon each of these doors.

The top tray itself might be supported on lengths of brass tube of $\frac{3}{8}$ in. diameter, which could be drilled for screwing to the carcase sides, whilst the shaped risers (Fig. 5) would be screwed into position from under. It might be an advantage to fit a pair of rollers or castors to the chest, as the whole thing when in use could hardly fail to be of considerable weight, and an additional convenience would be a brass handle screwed to each of the outside ends. (217)



DETAILS OF LINEN CHEST.

Weathered Oak Shade

L. E. W. (Reading) is desirous of finishing a piece of oak furniture, which is of a greyish colour, to a weathered oak shade.

REPLY.—Stain with Messrs. Hill, Son and Wallace's grey water stain powder, No. 11887. After the stain has dried for at least 36 hours, it should be fastened by giving the work a coat of white french polish made by dissolving 7 ozs. bleached shellac in 1 pint methylated spirits. Rub down the work smoothly and fill in with a white paste wood filler. When this is dry finish by french polishing, or, if you require a dull gloss, fad in with white polish and finish by the waxing process. Various grades of oak take the stain differently and you will find it necessary to test your stain beforehand on a scrap piece of the same oak. Another method is to mix fresh slaked lime and stain the work with a fairly thick mixture. Rub off any lime deposit before it sets too hard and later on, when the wood is dry, stain with the grey spirit stain powder No. 11889. A certain amount of the lime deposited in the wood gives the white effect to the pores of the oak. Other polishers mix a little powdered flake white into the bleached polish when giving the job the first brush coating. Much of the so-called weathered or grey oak is made up from dyed wood or dyed veneers and the planks are dyed under pressure by Horak's patented process. As we have repeatedly stated, these greys are fugitive shades and fade in the course of a couple of years to a dirty brownish colour. (226)

FIG. 1. FRONT.

FIG. 2. SIDE.

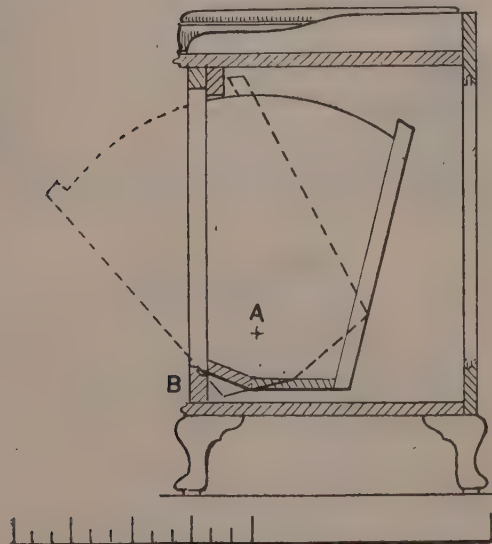
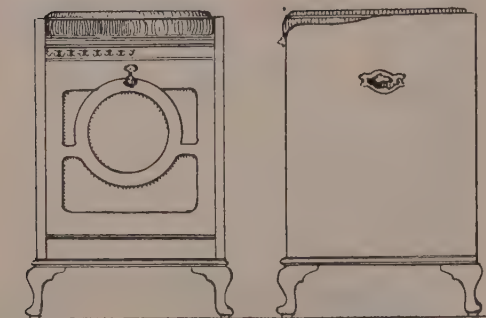


FIG. 3. SECTION, SHOWING ACTION OF CONTAINER, PIVOTED AT A.
CONSTRUCTION OF A COAL CONTAINER.

Coal Cabinet

L. J. S. (Burton-on-Trent) wishes to make a coal cabinet with loose lining of metal, the top to be padded as a seat.

REPLY.—The average height for such a cabinet would be 2 ft., with a width of 1 ft. 3 in. to 1 ft. 4 in., and a back-to-front depth of 1 ft. 3 in. This of course would be somewhat higher than the usual seat, although not too high for service in that way. As you wish to match the screen suggested in our Question Box columns in February, 1928, you might, we think, finish the door itself with a panel of circular shape as in front elevation (Fig. 1). A side view (Fig. 2) is included, indicating how the sides may be shaped above, where they serve as a stop for the cushioned top, the latter being fitted to overhang about $\frac{3}{4}$ in. at front. Carcase sides are of $\frac{3}{4}$ in. thickness and the front edge can be relieved by fluting. A back, $\frac{1}{2}$ in. thick, can be rebated into position. The front fall will finish about 1 ft. 2 in.

high by 1 ft. $1\frac{1}{2}$ in. or 1 ft. $2\frac{1}{2}$ in. Rails of the framing for this are $2\frac{1}{2}$ in. wide at top and bottom, stiles being $1\frac{1}{2}$ in. wide. The centre shaped rail dividing the panel can also be $1\frac{1}{2}$ in. wide for rounding, and, if the panel surround shown plain is moulded to shape, the circular panel can be effected as an applied shaping of plywood, to be fixed by glueing and needle-points on a background of 5 mm. plywood, the whole being either grooved in or beaded in from the back. If additional relief is desired, applied strip decoration could be introduced immediately under the top. A handle or knob can be fitted to tilting fall for finger hold, and handles at sides will assist portability. A carcase bottom of $\frac{3}{8}$ in. thickness will be best dovetailed in, or it may be screwed up and rebated into position. The cabriole legs shown would be about 4 in. high, a size which should be easily procurable from the sundries-man.

We include also a working diagram of the tilting arrangement of a coal cabinet (Fig. 3). The container is usually supported in a separate box made to fit it at sides and front, but with sufficient depth to take a scoop at back. It is, however, possible to fix it on buttons in some portable way so that it can be detached for filling, provided the front fall is strongly made. The method of pivoting the container is shown so that it tilts forward and is retained at the required pitch. When upright, the container is stopped by the front rail resting against a recessed rail, itself fitted to cabinet from side to side close under the top, whilst it also engages the bottom front rail (B) which is eased to receive it. The container is narrowed towards the bottom and, when pivoted at the point (A), tilts forward and is stopped against the inner rail by contact with the back rail of container box. In making this box the best way is to dovetail the back, front and sides together. A galvanised iron lining is fitted to lift out. The approximate position for fixing the pivots can be found on the diagram by means of the scale given. A simple and speedy method of finding the exact centre for pivot is to make an elevation enlargement of the side to full size on cartridge paper and another enlargement of side of container shown on cardboard. Cut this latter out and work one over the other with a compass point or toilet pin as centre, shifting the point about till the parts drop into position as indicated in diagram. Special pivots are obtainable from the local furnishing ironmongers, or if you find pivoting in this manner difficult you can get over the trouble very simply by hinging the bottom of the front fall to the bottom front rail with stout brass butts. The cushion on top might be finished 2 in. thick and stuffed with down or kapok, which will give a more comfortable result than wool or flock. (211)

T.L. (Dundee).—For a useful service wagon on rubber-tyred castors, see the March Number, page 68.

THE WOODWORKER

VOLUME XXXIV.

JUNE, 1930.

NO. 439.

LOUD SPEAKER AND WIRELESS CABINET

THE CONVENIENCE OF A COMBINATION PIECE

THIS type of cabinet has its obvious advantages from the purely wireless point of view.

It keeps the whole thing complete in one cabinet, saving the necessity of having to connect up every time it is wanted in use, and it does away with the unsightly appearance of loose wires lying about. It is also not without its advantages regarded from the standpoint of the woodworker, to whom it gives good scope. As a practical proposition it has only become possible since the introduction of the cone type of loud-speaker. It is true that for a while a few cabinets were made up with wooden horns made of plywood, but these did not lend themselves to being built into a cabinet so successfully as the cone. The latter takes up less space and really calls to be housed in a wooden cabinet.

The cabinet in Fig. 1 is intended for a set with a panel of the popular 18 in. by 7 in. size, although it is a simple matter to adapt the measurements given in Fig. 2 to suit a special set. Two doors enclose the panel, so keeping it dust-proof. As shown, the top is fixed, but there is no objection to its being hinged at the back if it is desired to have access to the set from the top.

The fret, unlike the usual practice, has just a single circular opening in the centre and is provided with a moulded rim, behind which the cone is placed. It is usual to obtain the rim ready turned, its size governing the diameter of the cone. A useful addition is the bottom drawer. Various oddments connected with wireless can be kept in it. Batteries are stored in the main

space in which the cone is fixed. A door is arranged at the back to give access to them and to the control knob of the unit.

The general style is modern, such features as the non-overhanging top, freedom from unnecessary detail, and the limited use of curves showing the present day tendency in design. From the accompanying illustrations it will be seen that the fret and doors are surrounded by a plain chamfered slip. This, if desired, could be replaced with the more usual moulding.

LEGS AND RAILS.—Deal with the legs first. Those at the front are chamfered. This chamfering is not done until after the joints have been cut, but should be taken into account when chopping the mortises. These must obviously not be cut too deep. Of the front rails, that at the top is dovetailed, and the remainder are tenoned. One point to note is that, as the bottom rail does not show, it is necessary to set it back. There is no need to set it in the full thickness of the drawer front as the latter can be rebated, as in the sectional view at Fig. 3.

All the back rails are tenoned in, and, differing from those at the front, they stand upright instead of lying flat. A groove must be worked in the legs between the top rails

to take the panel. The bottom rail is extra wide because of the drawer. Grooves are also required to hold the side panels. They must be stopped at the bottom. This necessitates the use of the scratch to finish off the lower ends—unless, of course, a spindle is available.

COMING TO THE CHAMFERING, the most satis-

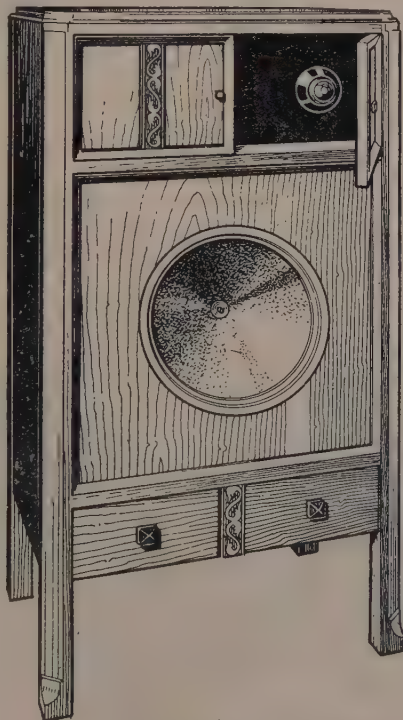


FIG. 1.—COMBINED LOUD SPEAKER
AND WIRELESS CABINET.

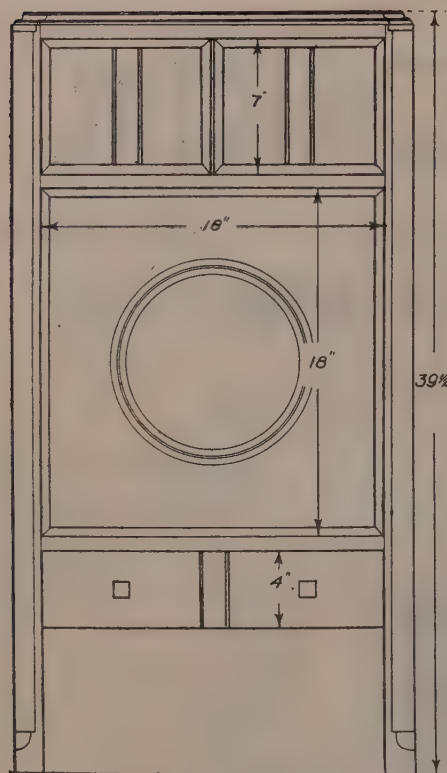


FIG. 2.—FRONT ELEVATION.

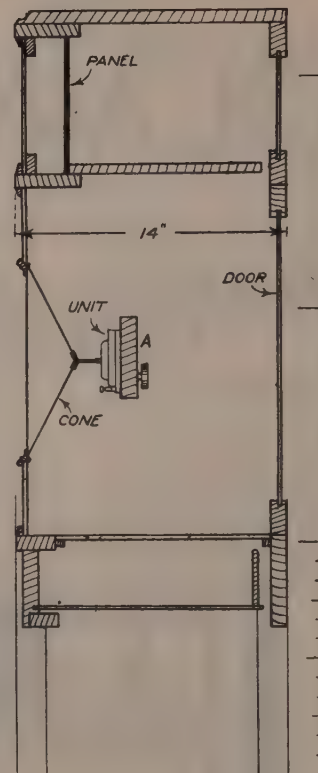


FIG. 3.—SIDE SECTION.

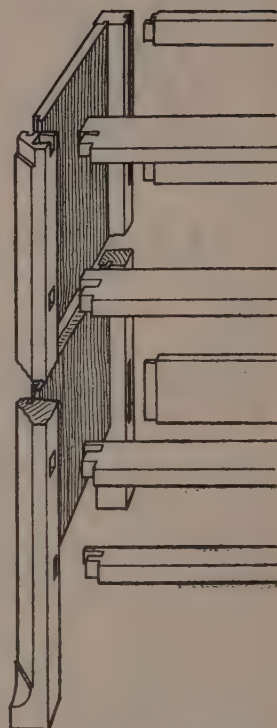


FIG. 4.—CONSTRUCTIVE DETAILS.

factory method is to leave the foot in the solid. This calls for some care, and it may be preferred to allow the chamfer to run right through and glue on a piece for the foot. The simplicity of this method is that it enables the plane to be worked right through. If the stop-chamfer method is adopted it is advisable to make a series of saw cuts across the grain nearly down to the finished depth. This prevents any tendency for the grain to split out.

The tongues of the side panels are produced by working rebates on the face sides. Before gluing up, a number of triangular blocks should be glued to the chamfer to provide a bearing for the cramps. The blocks are removed afterwards. An alternative is to glue up the ends before working the chamfer. In this case, the wood being square, the cramp can be applied easily.

All the rails can be in either $\frac{3}{4}$ in. or $\frac{7}{8}$ in. stuff. The two top rails at the front are extra wide because they have to reach back to the ebonite panel, which necessarily stands away from the doors about $1\frac{1}{4}$ ins. Grooves are worked in the two top rails at the back. Test carefully for squareness in both plan and elevation when gluing up.

There is no need for a complete shelf for the baseboard. It can rest on the rail at the front and on bearers running from back to front. If

desired they can be dowelled in, but as they are not required to take any great weight it is really sufficient to glue and pin them. If the dowelling method is preferred they must be put in at the time the carcass is being assembled.

A SHELF is necessary above the drawer. Plywood $\frac{1}{2}$ in. thick is suitable. It rests upon small fillets of wood glued and nailed to the rails as shown in the section at Fig. 3. Bearers are required for the drawer. These can be screwed through to the side panels. If the screw heads are deeply sunk into the wood only comparatively short screws, on which guides are fixed, need be used.

There is no special point in the drawer construction except that the bottom stands up sufficiently to clear the bottom rail. It has already been explained how the drawer front is rebated to fit over the rail. A short upright fret is glued at the middle as shown.

Fig. 5 gives the construction of the doors. A light framework of $\frac{1}{2}$ in. stuff is tenoned together and the plywood panel glued and nailed direct to it. This is fitted in position, a chamfered slip or moulding mitred round the front and the centre fret added. It should be noted that plywood panels are really essential in this form of construction as solid wood would be liable to split.

The method of fixing the fret is given in Fig. 6.

Fillets are nailed round to the rails and legs and the fret screwed or nailed to these. A chamfered fillet or moulding similar to that used on the doors is glued and nailed around the edges. Before beginning to mould the edges of the top make sure that they follow the line of the main carcase, especially at the chamfered corners.

The majority of units require to be fixed to a cross-rail (see A, Fig. 3). This takes no great strain and can be fixed by means of glue blocks rubbed in at each side. The exact position depends upon the particular unit and cone used. Certain types have a chassis which makes the cross-rail unnecessary. The whole job is completed by the addition of the back door. This is a plain mortised frame with grooved-in plywood panel.

CUTTING LIST:—

	Length.	Width.	Thick.
	ft. ins.	ft. ins.	ins.
4 Legs	3 3½	0 1½	sq.
2 Rails	1 8	0 3½	¾
1 Rail	1 8	0 2½	¾
1 Rail	1 8	0 1½	¾
2 Rails	1 8	0 2	¾
1 Rail	1 8	0 5	¾
2 Ends	2 7½	1 0½	¾
1 Top	1 9	1 2	¾
1 Panel	1 7	0 6	ply
1 Bottom	1 8	1 0	½ ply
1 Fret	1 6	1 6	(finished)
2 Panels	0 7½	0 9½	ply
4 Stiles	0 7½	0 1½	¾
4 Rails	0 9½	0 1½	¾
1 Front	1 6½	0 4½	¾
2 Sides	1 0	0 3½	¾
1 Back	1 6½	0 3½	¾
1 Bottom	1 6	1 0	ply

THE 1929 WOODWORKER Volume contains designs (with full directions and cutting lists) for two complete bedroom suites, also for a living room or dining room suite. There is an exhaustive series of twelve articles on Everyday Joints, and another series on Practical Veneering. The general designs cover items of living room, drawing room, library, hall, bedroom, kitchen and scullery items, and among other features are many articles on outdoor woodwork and garden furniture. The volume, of nearly 400 pages, may be had strongly bound in dark green cloth and with complete index, price 6s. 6d. net. Evans Brothers Ltd., Montague House, Russell Square, London, W.C.1.

TECHNICAL TERMS.—A small American "Dictionary of Technical Terms," compiled by F. S. Crispin and issued by the Bruce Publishing Company, of Milwaukee, is procurable in this country from Messrs. B. T. Batsford, Ltd., 94, High Holborn, W.C.1., price 6s. net. The dictionary, which has a few small illustrations, contains definitions of commonly used expressions in architecture, and in the building, woodworking, electrical and metalworking trades.

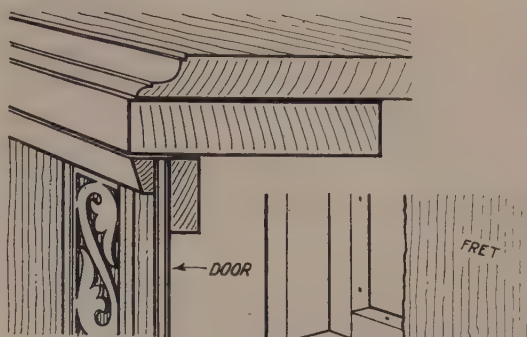


FIG. 5.—SECTION THROUGH TOP AND DETAIL OF DOOR.

FIG. 6.—BOTTOM RAIL JOINT AND METHOD OF FIXING FRET.

	ft. ins.	ft. ins.	ins.
2 Stiles	1 6½	0 2	¾
2 Rails	1 6	0 2	¾
1 Panel	1 3½	1 3½	ply

(274)

FOR FINISHING NEW PITCH PINE it is not necessary to stain the wood to bring out the natural beauties of the grain unless it has to match some older and darker wood. The polisher usually treats the work as follows. Remove all dirty or greasy finger marks by lightly glasspapering in the direction of the grain and give the work a coat of brush polish which should be made by mixing half transparent (white) polish with half orange polish. Rub the work down with glasspaper of a fine grade and then ply a fairly moist rubber of orange polish on to the surface. When dry ease down with No. 0 glasspaper and give the work a coat of good brush polish, followed by bodying-up and stiffening.

"CABINET WORK."—From Messrs. Longmans (Paternoster Row, E.C.4) we have received a copy of "Cabinet Making: Theory and Practice" (3/6 net), by Alfred L. Keeble. The illustrations, we note, are nicely prepared but, although the book will be useful in the Handicraft Centre, its directions are rather meagre for the man who is carrying on bench work at home.

A NEW EDITION of "Woodwork Joints" (3/6 net) is now ready. Evans Bros. Ltd., Montague House, Russell Square, W.C.1.

CHIPS FROM THE CHISEL

IN THE GARDEN

FOR a month or so past the man with a garden, who is also a woodworker, will have been turning over in his mind what particular items he would like to add to it. And in this matter of garden furniture—the light chairs, tables, hammocks, arbours, etc., which enable us to enjoy our gardens at leisure—there are one or two practical considerations which need to guide our choice.

To begin with, there is the matter of portability. Unless we have at hand a fairly capacious shed, where articles which will spoil in the rain may easily be stored, obviously we shall have to keep to the lighter, simpler articles. A couch-hammock, for instance, charming though it looks in an exhibit of garden furniture, would be a very different proposition if it were left out in the rain and became a mass of sodden canvas, especially as the swing canvas seat is often padded. We have to be prepared to take it down and store it away, together with the end posts, at short notice, and it is a fairly elaborate thing which takes a certain amount of good housing. The same applies to all sorts of portable canvas erections for sheltering from the sun. The sun and the rain follow each other so quickly in this country that, before the canvas is dry, we may be needing it again as a shelter from the glare of the sun, and wet canvas makes a depressing atmosphere of its own which we do not want to endure voluntarily. If, however, before investing in the more elaborate articles we see that we have easily available storage space for them, all will be well.

The ideal shelter for the hot afternoon is, of course, a tree, and anyone who has a really spreading, sheltering tree in his garden has something to be thankful for. I have met men who bewailed the fact that they had trees in their garden, but I never felt that they were true gardeners at heart. They could feel for their flowers and their cabbages, which were affected by the neighbourhood of the tree, but they could not see what made the real beauty of the garden as a whole, and it takes both sentiments to make your true gardener. Too many trees are injurious: the garden wants light and air as well as shade, but many gardens have room for at least a tree or two, and a tree with even only a few square yards of lawn beneath it makes a magnificent retreat for a summer's afternoon.

There is always the possibility, of course, at least early in the year, that a family of tits may have a nest in the bole of the tree, and that the parent tits in their excitement at seeing an intruder below, may drop down your neck the green caterpillars which they intended for their offspring. But this is all in the day's work for you as well as for them. At any rate you will be rewarded by a peep at the nest and nestlings, and

although you will be lucky if the parent birds do not return while you are still looking and beat their wings in anger at the outrage, you will soon get quite clever at avoiding the caterpillars.

Personally that is one reason why I always prefer a deck chair to any kind of fixed seat round the tree trunk. You can move it freely to avoid the insects, and this, more especially when taking meals in the garden, is important. Also it is often necessary to avoid the sun, for it is strange how shafts of sunlight will find you out even under the shadiest of trees if you do not choose your position well. There is no comparison in comfort either. A tree trunk is not really comfortable as a leaning post for any length of time, nor does a rigid wooden seat give the lounging comfort which at heart we most of us like on a summer's afternoon. For those, however, who do not care for the usual type of deck chair there is now the upright variety with canvas seat and back, to be had in various excellent designs, some with back slightly sloped, and obtainable with or without arms. These chairs will be found most comfortable.

This year there are folding and deck chairs of all kinds on the market made in Canadian birch, some of them with their canvas coloured to represent flower gardens: not just floral designs, be it noted, but covered all over with garden scenes showing riots of flowers; hollyhocks, sunflowers, lupins, marigolds, everything that is vivid and hot in colour. These chairs must present a pretty problem to their daring owners. Should one, for instance, sit on one's chair garden, or does one simply sit on the grass and admire the chair as part of the garden effect, since as a matter of fact they have a gorgeousness which no garden could equal? For a small back yard where flowers will not grow, or even for a roof garden where possibilities are limited, they may have their uses, but even then there would be the temptation to sit on the dusty ground and admire the chairs rather than to sit in them. We cannot think that these will ever really be very popular, for they would make the gayest gardens look faded. The conventional, brightly striped canvas, which can be obtained in some very effective designs nowadays, will take some ousting from favour. It does not enter into rivalry with the flowers, but gives just the right note of cheerfulness that we require in our garden furniture.

Quite a good idea is the new type of light air mattress that is being made now for garden use. This is prettily designed, is quite light and portable and seems to be an improvement on the hammock idea. It is for the person who wants the last word in garden luxury, for on it one can lie stretched out full length on a summer's day to sleep or read.

PAIR OF ORNAMENTAL PLANT TUBS

IT is surprising how much a pair of ornamental shrub tubs will add to the appearance of a house when placed near the entrance as suggested in Fig. 1. Tubs of this kind, especially when intended for outdoor use, may be easily and cheaply made, for they look best and last longest if painted, and with this finish it is possible to work in almost any wood.

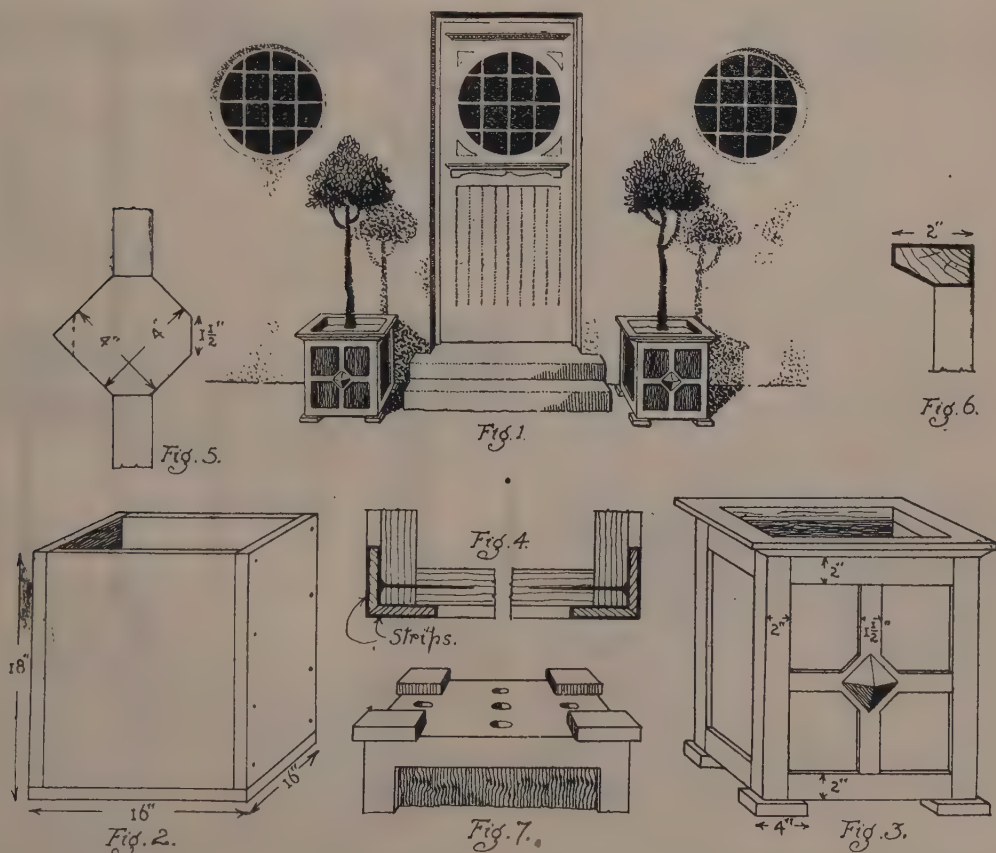
THE METHOD OF CONSTRUCTION adopted is to cut the sides and bottom from 1 in. stuff and nail them together, the strips forming the sham framing being cut from $\frac{1}{4}$ in. stuff and pinned to the sides.

THE SIDES AND BOTTOM may be nailed up to the dimensions shown at Fig. 2, or proportionately larger or smaller according to the size tub required, care being taken to see that the height is rather more than the width. The strips forming the sham framing should be arranged as at Fig. 3. Strips, 2 in. wide, are fixed at the corners and across the top and bottom, at the sides and back, those at the corners being mitred as at Fig. 4. A centre piece, shaped as at Fig. 5, is fixed in the centre of the front, and strips $1\frac{1}{2}$ in. wide are fixed between it and the sides, top and bot-

tom, while a bevelled block, 3 in. square, is fixed to the centre piece. The top edges are finished with capping rails, 2 in. wide by 1 in. thick, shaped as at Fig. 6, mitred at the corners and nailed in place. Holes are bored in the bottom for drainage, and a block 4 in. square by 1 in. thick is fixed at each corner (Fig. 7) to raise the tub from the ground.

The tubs may be painted green, grey or primrose, a good effect being obtained by having the ground slightly darker than the strips. (278)

"STAINING AND POLISHING."—This volume, one of the most popular of *The Woodworker Series*, has (with the exception of two or three chapters which required little modification) been entirely re-written. New features are the chapters dealing specifically with the treatment of different timbers, whilst prominence is given to such processes as the cellulose finish, the acid finish, french polishing by machinery, cellulose dipping, etc. A useful index of over a thousand references is added. (Price 3/6 net). Evans Bros. Ltd., Montague House, Russell Sq., W.C.1.



GARDEN PLANT TUBS: FIG. 1.—SKETCH.

FIGS. 2 TO 7.—DETAILS OF CONSTRUCTION.

ERECTING A GARDEN ARCH & SEAT

OUR illustration (Fig. 1) shows a very fine arch for the garden, constructed with a seat on either side. It will be found exceedingly ornamental and useful, and will be appreciated in any garden during the summer when covered with climbing roses or creepers to afford a shade. The work requires no expert knowledge, and may be carried out at small cost, for, with the exception of the main framing, all the wood required is of short length and small section, and many woodworkers often have a considerable amount of such stuff on hand.

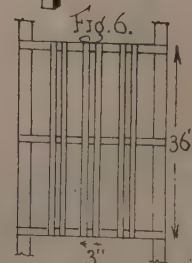
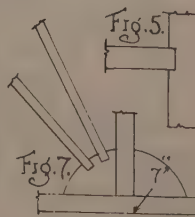
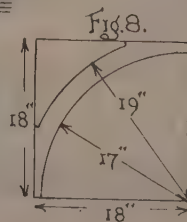
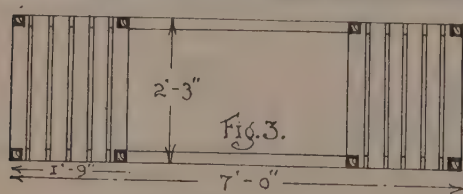
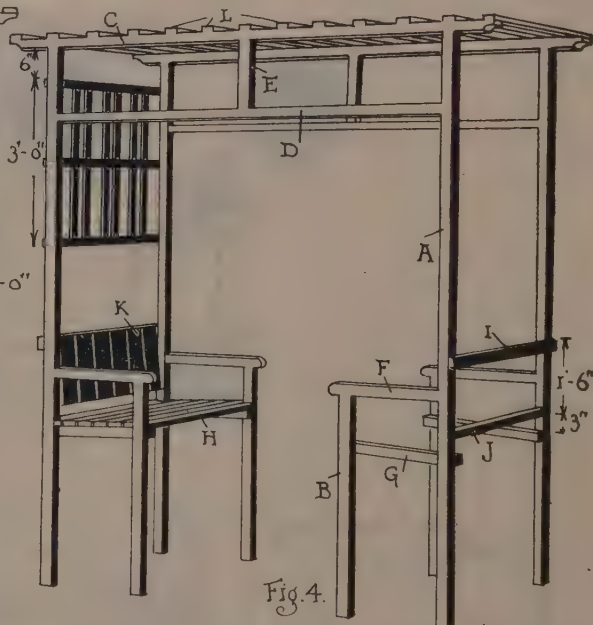
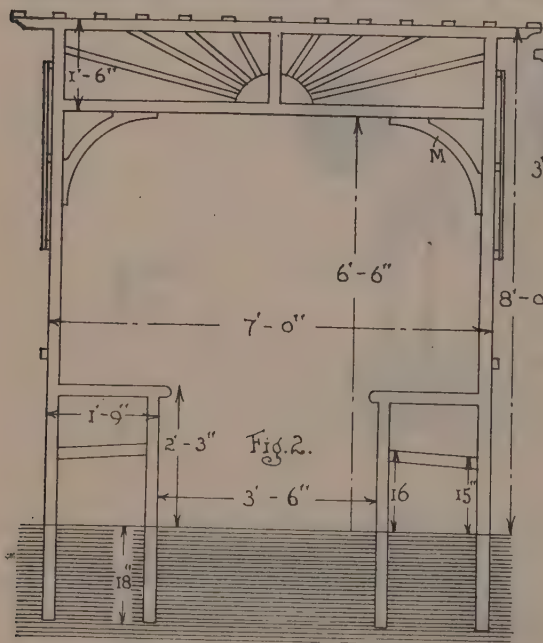
DIMENSIONS are suggested in the elevation and plan (Figs. 2 and 3), and details of the construction are shown by the sketch (Fig. 4). The dimensions need not be rigorously adhered to, but that of 3 ft. 6 in. shown for the width of path and distance between the seats should not be reduced to less than 2 ft. 6 in. and, when an arch is being erected over a narrower path, the latter should be extended to this width where the arch is to stand, otherwise the seats will be too near each other for comfort.

THE TWO SIDES of the arch should first be made up separately. The uprights (A) are 9 ft. 6 in.

long; uprights (B), 3 ft. 9 in. long; top rail (C), 8 ft. 4 in. long; head rail (D), 7 ft. long; centre rail (E), 1 ft. 6 in. long; elbows (F), 2 ft. long, and seat rails (G), 1 ft. 9 in. long, all by 2 in. square. Mortise and tenon joints are used to frame the uprights and rails together, the uprights (A) being framed into the top rail (C), the head rail (D) into the uprights, the uprights (B) into the elbows (F), and the latter into the uprights (A). The centre rail (E) could be notched into the top and head rails, as at Fig. 5, and nailed, while the seat rails are bolted or screwed to the uprights. The frames being made as described, they should be erected on the site and trued up, the uprights being sunk 1 ft. 6 in. into the ground.

THE SEAT BATTENS (H) should be 3 in. wide by 1 in. thick, nailed to the seat rails. The backs are carried by top rails (I), 2 in. wide by 1 in. thick, screwed to the back edges of the uprights; the bottom rails (J), $1\frac{1}{2}$ in. square, notched in flush with the back edges of the uprights, while the battens (K) are 3 in. wide by $\frac{1}{2}$ in. thick, nailed to the rails.

Thirteen battens (L), 2 in. wide, are nailed to the top of the arch, and a number of small trellis



FIGS. 2 TO 8.—ELEVATION AND DETAILS OF GARDEN ARCH (SEE FIG. 1 ON NEXT PAGE).

rails, 1 in. wide by $\frac{1}{4}$ in. thick, are nailed at the side to form the pattern shown at Figs. 4 and 5.

THE RISING SUN PATTERNS which are introduced at the top of the arch are formed with discs of 1 in. stuff cut to the pattern shown at Fig 7, nailed on each side of the centre upright, and completed with small trellis rails, nailed to the back of the discs and top rail. Finally the shaped rails (M) are cut from 1 in. stuff to the pattern given at Fig. 8, and fixed in place.

The arch could be treated with a patent wood preservative and stain, or could be painted, in which latter case a good effect may be obtained by picking out the sun patterns in a different colour from the rest of the work.

(240)

FOR DESIGN for a lych gate, see the May number, page 146.

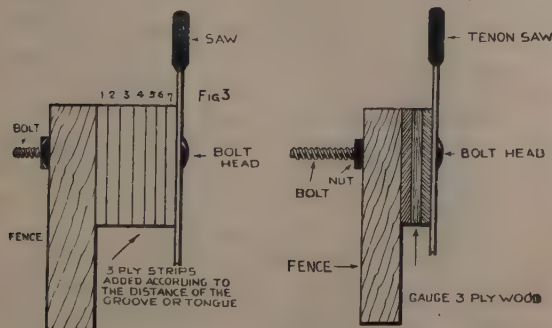
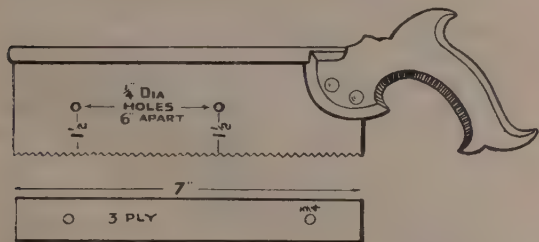
"HOW TO QUALIFY AS A HANDICRAFT INSTRUCTOR." Send threepence for this useful little pamphlet. Evans Bros. Ltd., Montague House, Russell Square, London, W.C.1.



FIG. 1.—GARDEN ARCH AND SEAT (SEE DETAIL ILLUSTRATIONS ON PREVIOUS PAGE).

A TONGUEING AND GROOVING SUGGESTION.—Take a 12 in. tenon saw and drill two $\frac{1}{4}$ in. holes 6 in. apart and $1\frac{1}{2}$ in. from the toothed edge to receive two 6 in. bolts. Next make the fence out of a piece of 7 in. by $2\frac{1}{2}$ in. by $\frac{3}{4}$ in. hardwood and drill two holes to correspond with those in the saw blade, but $\frac{1}{4}$ in. from one edge. A few plywood strips must be made, say, 7 in. by

$1\frac{1}{2}$ in. Drill holes $\frac{3}{4}$ in. from one edge and this will give the depth of the groove, $\frac{1}{4}$ in. The method of using the appliance is to place the bolts in the saw, add two of the plywood strips, put on the fence and make a saw cut into the edge of the board or door stile. Then add another plywood strip and make another saw cut in the wood. The waste between the saw cuts can easily be removed with a chisel. Of course this is only one example of how it works and the user can alter the plywood strips according to the distance and depth of the groove or the tongue he desires to make. One sketch shows a number of the plywood strips in position. This contrivance may also be used for sawing the shoulders of tenons and, if the strip is carefully adjusted, it is impossible to cut down too deeply into the wood and thus weaken the tenon.—W. KETTLEY (Walsden). (239)



READER'S HINT ON TONGUEING AND GROOVING.

"DINING ROOM FURNITURE DESIGNS."—Revised edition. The designs selected are all modern in character, specially suited for present-day requirements. The items include two complete suites, and there is an excellent range of draw extension tables in different styles. Five sideboards of varied character are dealt with in detail, and other items include single chairs and arm chairs, fireside chair, lounge easy chair, settee, bureau bookcase, trestle dining table, cabinet for china, cutlery and silverware, draught screen and coffee table. Scale drawings, cutting lists and full directions are given. (Price 2/6 net.). Evans Bros. Ltd., Montague House Russell Square, London, W.C.1.

NOTES ON OUR EMPIRE TIMBERS

ALTHOUGH wood has served the needs of mankind in ways too numerous to mention ever since the world started, there are few outside a timber yard who have an intimate knowledge of that most valuable material. More surprising still is the fact that the public generally, when in a timber yard, seem afraid to confess their ignorance. This is especially noticeable with amateur woodworkers, many of whom, when purchasing the wood, instead of stating at once the purpose for which it is required, seem bound to secrecy, and only with the greatest difficulty can we in the yards extract sufficient information to enable us to supply a wood somewhere near suitable.

Much of this sort of thing has occurred lately over the new demand which has arisen for "Empire woods." Wood consumers generally, both amateur and professional, with commendable patriotism, are doing their best to use British timber wherever possible. Although these woods are by no means new to the timber trade they are fresh to most people, and little is known of their characteristics and uses. Therefore, a little information about some of the new woods which are now being adopted as standard timbers may save the time, money and disappointment of those who have not studied the subject.

INDIAN WHITE MAHOGANY. Yellowish-white in colour, with a lustrous appearance, this wood is straight grained and remarkably free from defects. It is about equal in weight to ordinary mahogany and works easily and well, affording a smooth silky surface. Possessing good staining and polishing properties, it will be found valuable for many purposes for which cost will not permit of more expensive and better class woods being used. It can be obtained in square-edged boards up to 2 feet wide.

SILKY OAK. This beautiful wood is one of the most ornamental of Australian timbers. Light brown in colour, it has a moderately hard and close grain, and is marked with a striking wavy figure. The wood is tough and elastic, durable when under cover, and neither splits nor warps when well seasoned. It works well and easily and takes a good polish. It is well suited for ornamental cabinet work, panelling and other decorative work, including internal fittings, and is well adapted for turning as it does not chip in manufacture.

IROKO, from Nigeria and the Gold Coast, is often described as "African teak" or "African oak," but is not related to either teak or oak, and bears little resemblance in appearance or character to these standard timbers. Iroko is a strong, moderately hard, very durable timber, of fairly open grain, pale to dark brown in colour and of good appearance. Although somewhat cross-grained, it planes well and will take a good polish when filled. When mortised and dovetailed it forms strong and reliable joints. It is well adapted for work that requires a strong durable wood of good appearance for indoor and outdoor purposes.

WHITE CHUGLAM—a native of India. This

wood is very durable and remarkable for the fact that it will not twist or shrink—an important advantage, as every woodworker knows. Pale yellow-grey in colour, it has a smooth wavy grain and pleasing lustre, giving it a very showy appearance. It is of firm texture and moderately hard. A useful wood for panelling and decorative purposes, it runs to about 20 ins. wide.

TASMANIAN OAK. Sometimes called Tasmanian ash, this wood in general resemblance is more like English ash when first cut, but later its colour tones down to that of certain grades of plain oak. A strong, elastic, resilient wood, of moderately close texture and straight grain, working easily and well, it is capable of a smooth finish and good polish. It is an excellent wood for bending purposes, and a good substitute for ash for any purpose.

CRABWOOD. Grown in British Guiana, this wood is of the mahogany family, and in general characteristics closely resembles the medium qualities of mahogany, for which it can be used as a suitable substitute. Although not quite so hard as mahogany, it is very tough with a fairly open grain. It also resembles mahogany in colour, and has a very lustrous appearance. It is easy to work, but requires care in planing as the wood is apt to "pick up."

BLACK BEAN.—An Australian timber of great beauty. Handsomely figured, it is of a fine dark walnut colour with lighter bands and dark streaks, and sometimes mottled. The grain is straight and close in texture, the timber working easily to a fine smooth surface, making it excellent for polishing. However, it needs careful seasoning and should not be used too fresh. An admirable wood for cabinet work, panelling and ornamental joinery.

BRITISH COLUMBIAN PINE is one of the largest, if not the largest, softwood constructional timbers in the world. A similar wood shipped from America is called Oregon pine, but as a result of representations recently made by the Canadian Government Trade Commissioner in London, the timber exporters of British Columbia have arranged that all woods grown in the province shall be branded with the word "Canada" in order that consumers may identify the timber from similar American exports. Columbian pine can be obtained in long lengths and great widths. The wood is of an even, smooth, close grain, with a surface which, in alternate bands, is partly of a resinous lustre and partly dull. There are two varieties, red and yellow, the red being much coarser. It is a strong wood, and an excellent substitute for yellow deal. It has one big disadvantage—being very difficult to work, and great care has to be exercised to avoid the surface ridging. The yellow class is beautifully figured, and plywood panels of this wood are very attractive when polished.

Empire timbers can now be obtained at most of the leading timber merchants, and there is no reason why we should continue to import from foreign countries nine-tenths of the wood consumed in this country.

HOME CARPENTRY

CHAIR STEPS FOR THE SCULLERY—BOWSAW AND SPOKESHAVE WORK

THERE appears to be little doubt that Sheraton was the originator of combination chair steps for library use, and at Figs 1 and 2 we show a simple piece of household furniture based on precisely the same idea, but simplified in regard to the actual making. When it is required to reach any article from the upper shelves of the scullery or kitchen, the back of the chair is simply turned over on its hinges and we have a useful and convenient pair of small handy steps.

Practically the whole of the wood, with the exception of the step (D) and the shaped front rail (E) consists of $\frac{7}{8}$ in. clean red deal which when planed and thickened will finish full a $\frac{3}{4}$ in. The portions D and E need only be $\frac{1}{2}$ in. in thickness. For the novice we advise the making of the step portion (Fig. 3) first, and when this is completed he should mark out and make the seat.

THE STEPS.—Commence by setting out in pencil one side of the steps (Fig. 4) on a piece of plywood or stiff cardboard, so that you can actually build up this triangular frame on the working drawing. This method will ensure correct sizes and angles at the various joints, and the frame may be temporarily held together during the

fitting process by suitable screws, the joints of course being left unglued at this stage of the work. At Fig. 5 we show the joints for the above frames, with the correct angles of each piece in heavy lines, so that the worker may take them off with a joiner's bevel. If you experience some difficulty in sawing and planing the ends of the pieces A, B and C (Fig. 5) to the angles given, you will have slightly to decrease the height and width of frame (Fig. 4) so as to utilise the wood. This is really of little moment because a slight (say $\frac{1}{4}$ in.) variation of frame will not affect the utility of the article.

* After fixing the side frames together with screws and unglued joints, proceed to complete the lower step portion (Fig. 3) according to the dimensions given at Fig. 6, which shows the front view and the splay of the side frames. The top ends of the side frames may be slightly housed into the top step at A (Fig. 6) to accommodate the splaying of the legs in their outward direction. When all the parts of Fig. 3 have been assembled to the satisfaction of the maker, take the work apart, glue the joints and finally fix this part of the job together.

THE SEAT.—A piece of wood for the seat por-



FIG. 1.—CLOSED AS CHAIR.

FIG. 2.—OPEN AS STEPS.

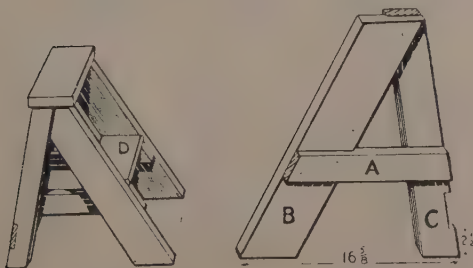


FIG. 3.—LOWER STEP PART COMPLETED.

FIG. 4.—END FRAME FOR LOWER PART.

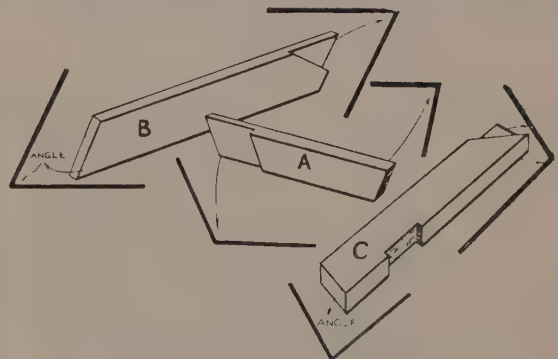


FIG. 5.—SHOWING JOINTS FOR PARTS A, B AND C, WITH THEIR ANGLES.

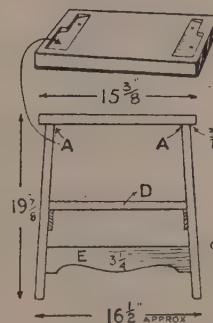


FIG. 6.—ELEVATION OF STEPS.

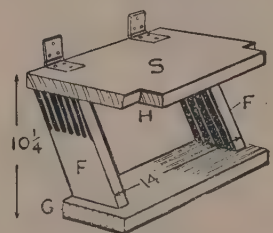


FIG. 7.—SKETCH OF UPPER PORTION.

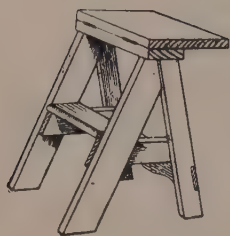


FIG. 8.—SEAT
HINGED TO STEP.

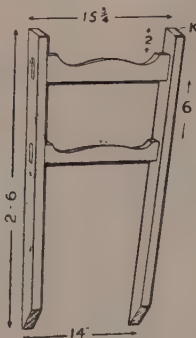


FIG. 9.—CHAIR
BACK FRAME.

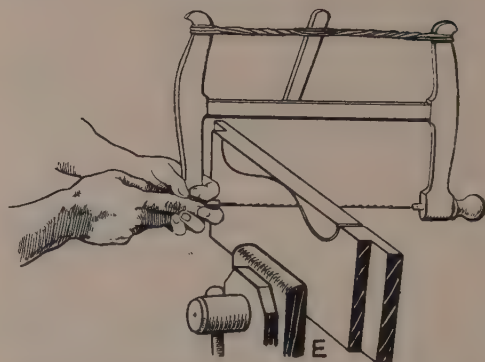


FIG. 10.—HOLDING BOWSAW WHEN IN USE.

tion (S, Fig. 7) will now be required, and should be made in the first instance about $\frac{1}{4}$ in. longer and $\frac{1}{4}$ in. wider than its finished size so that the protruding parts may be sawn and planed away to the required sizes after the job is assembled. Hinge this piece (S) to the top, as at Fig. 8, with a pair of 2 in. steel back flap hinges, sinking in the plates of the hinges flush with the woodwork. After hinging, turn the seat over to the position illustrated at Fig. 8, and cut, trim and build on to it the two pieces (FF) shown at Fig. 7, and to these pieces, which are 14 ins. apart and parallel to each other, screw the top step (G).

Before notching out the corners (H) it is good policy to make up the chair back as sketched at Fig. 9. The novice may then mark out the corners and trim them to the approximate bevels by the trial and error method. Some latitude is allowed in cutting as the seat in its present stage is about $\frac{1}{4}$ in. wider and longer than the finished size, so that after fitting the chair back in position any projecting portion may be sawn and planed flush with the back rails. The ends of the chair back (K, Fig. 9) should be sawn and trimmed off after the steps are finished and assembled, otherwise there is a danger that these rails will be too short to give true alignment with the floor when the steps are open.

The flat work is of course finished by glass-papery, after which all the sharp edges of the various pieces are slightly rounded. Complete by giving two coats of shellac knotting,

eased down with fine sandpaper between each coat, and then give the job one coat of good inside oil varnish.

In our May number we illustrated a method of folding a sheet of paper and drawing on one half of it a freehand curve of half the desired design. The paper is cut whilst folded, and upon opening the paper the worker obtains a perfectly balanced and symmetrical pattern. This is the method adopted to obtain the shaped pattern for the two cross rails in the chair back and the one below the first step.

THE BOWSAW AND SPOKESHAVE.—The rails are now sawn to their approximate shape with the bowsaw (Fig. 10). When a bowsaw is not in use the twist stick should be revolved so that it releases the twine and the tension is thus taken off the saw blade. On taking up the bow saw (or framesaw as the makers catalogue it) turn the twist stick so that the saw blade is tensioned, then sight down the edge to make sure that the blade is not in winding; hold the tool as shown in the illustration and commence the cut just as you would if using a tenon saw, i.e., by one or two backward strokes. Try to keep the saw blade in a horizontal position, at the same time holding it at right angles to the face of the wood. If any portion of the saw frame should foul the timber you are cutting, simply hold both handles of the saw firmly and partly revolve the frame until it clears your work. Be sure after doing this that you have not left the saw blade in winding, because this is a frequent cause of crooked sawing and broken blades. Bowsawing to a given line requires a considerable amount of practice and beginners should saw about $\frac{1}{8}$ in. clear of the marked line. If any lumps are in evidence after the bowsawing operation pare away with a sharp chisel and finish off the curved edge with a small spokeshave. The spokeshave should be grasped firmly, the thumbs being held behind the stock which should be pushed freely and evenly forward to take off a thin shaving or two. The arrows in Fig. 11 denote approximately where the grain of the wood changes its direction.

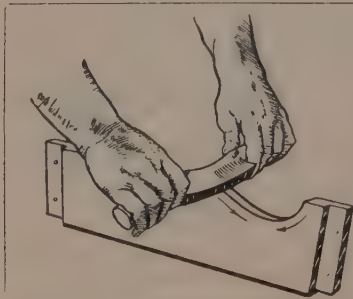


FIG. 11.—HOW
THE SPOKE-
SHAVE IS HELD
WHEN WORK-
ING.

WOODWORK MOULDINGS

A WORD ON PRINCIPLES, WITH SOME EXAMPLES

AS civilisation progresses life tends to become more and more complicated. There is a desire now for simplification, not necessarily in our activities but in the things around us. We craftworkers think with William Morris that "no man but one of the highest genius could do anything in these days without much study of ancient art, and even he would be much hindered by lack of it." And so, although perhaps we conform to the spirit of the age in this matter of the mouldings on furniture and other woodwork because we feel the urge for simplification, yet we retain a place in our hearts for the elaborate and skilfully cut and designed mouldings of former workers. It is for each of us individually to appreciate the craftsmanship entailed in cutting and working mouldings, and it is for each of us to come to some understanding about the general principles involved. As we know, the modern tendency is to dispense with mouldings altogether; but there is at least one type of moulding, the receding type,

which is characteristic of the time.

We speak of two general types of mouldings in wood—"stuck" and "planted." "Planted" indicates that the moulding has been worked and afterwards glued or pinned to the surface or edge, and "stuck" that the moulding has been worked in the material of the job itself.

THE ELEMENTS.—Another essential point to remember is that, although the variety of mouldings which it is open to our ingenuity to devise is almost endless, yet we must of necessity use some of the classic elements in every moulding. Of course it would be possible to practise this craft of cutting mouldings without art, but it is not only the result we want, it is also the joy in the intelligent creation of those results.

The elements, as we have called them, are the various types of curved section which have been used in mouldings, and evolved principally by the Greeks. The ogee curve is represented in Fig. 2 and is sometimes called the *cyma recta*, the right ogee. In Fig. 3 what has been called



FIG. 1.
RECESSED
MOULDING



FIG. 2.
THE OEGE.

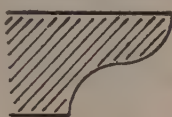


FIG. 3.
REVERSED OEGE.



FIG. 4.
BEAD AT
CORNER.



FIG. 5. USE OF THE OVOLO
ON PANEL.



FIG. 6. BELOW
EYE LEVEL.

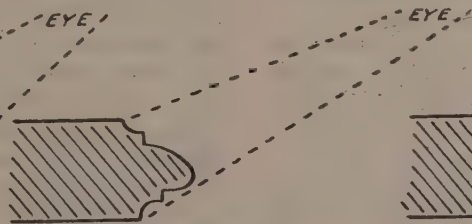


FIG. 7. MEMBERS
ABOVE AND
BELOW.

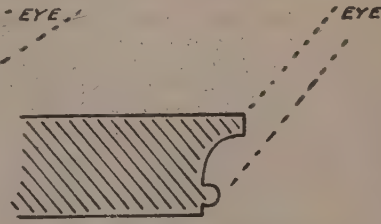
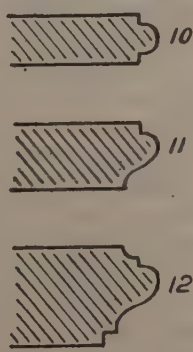
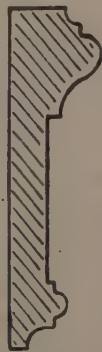


FIG. 8. INCORRECT MOULDING.



FIG. 9. TWO EXAMPLES
OF PANEL MOULDINGS.



FIGS. 10, 11 AND
12. EYE-LEVEL
MOULDS.



FIG. 13. MOULDING
FROM OLD LIVERY
CUPBOARD.

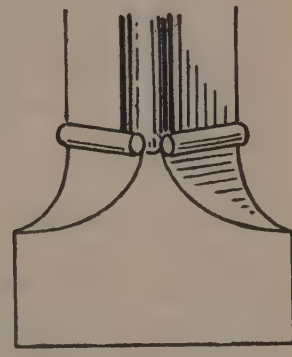


FIG. 14. LEG OF 15TH
CENTURY BENCH.

the *cyma reversa*, or reversed ogee, is illustrated. A moulding with a quarter circle section is called an *ovolo*. A bead is a small semi-circular section, a fillet a small square section moulding. The bead is sometimes known as the *astragal*. The wooden frames of a window, which hold the glass, approximate to a semi-circular section and are called *astragals*.

PRINCIPLES OF DESIGN.—In modern work the design of the furniture itself is making for compactness and suitability for purpose. Thus the first source from which mouldings come is absent. All mouldings are refinements of crude methods of cutting off and relieving corners and of filling in angles. An inconvenient corner on some cumbersome old chest would be cut off, leaving a bare space which would invite decoration by means of, say, a bead run down it. (Section, Fig. 4). Again, an angle which would be likely to hold dust gave opportunity for the use of an *ovolo* (Fig. 5).

These two principles established, elaboration of the mouldings with a view only to ornament came later. Here are introduced the further problems of the use of the article to be decorated, distance of the moulding from the eye, and position above or below the eye. For things in constant use, which are frequently being handled (trays, boxes, etc.) mouldings should be chosen with no intricate work or delicate projections. Things which are handled should, however, not have such large-membered mouldings in proportion as those things where the mouldings are at a greater distance from the eye.

A few easy rules may be formulated for use when designing mouldings. Their observance makes all the difference between failure and success of purpose, and they come quite naturally to us. Obviously mouldings below the eye level should be moulded on their upper sides. Fig. 6 shows how the moulding then shows to advantage. Fig. 7 is another type with members above and below, but arranged so that all can be seen. In Fig. 8 we see how an incorrect moulding cannot be seen when placed below the eye.

Mouldings placed above eye level, e.g., cornices, should be moulded on their lower sides. Cornice and plinth mouldings being at some distance from the eye should have large members. Sometimes mouldings occur on a level with the eye. The mouldings then used have members on both upper and lower sides as in Figs. 10, 11 and 12. Such mouldings are used to cover the joints between carcasses and for similar purposes.

Varieties of Mouldings.

VARIETY.—A great deal of the charm of mouldings lies in their variety and unexpectedness. The reader should, with the aid of the diagrams and precepts above, be able to discriminate between the good and the bad in moulding design. "Fitness for purpose" should be well considered; elaboration, as in period examples, will

show to better advantage if general form is good.

EXAMPLES.—For many hundreds of years after ancient civilisations were forgotten, furniture was of very rough construction. During the thirteenth and fourteenth centuries, however (and before that time), church chairs, chests and cupboards were decorated with mouldings. The domestic furniture was of the type we now associate with churches, and consisted of chairs, chests, livery and court cupboards. The mouldings were often in the nature of deep fluting on the faces of frame members—i.e. they were stuck mouldings. The example (Fig. 13) is a section of a moulding from one of these old livery cupboards. The worked side of the moulding faces the spectator, and is suitable in positions above, level with, or below the eye level.

In the fourteenth and fifteenth centuries, although attention was given to panelling, the moulding on the framework was merely a chamfering, although the panels themselves were often of the elaborate linenfold pattern. Mouldings on furniture were either scarce or of the heavy type associated with stone-work. Much furniture was built with panelling imitating church windows. Throughout these times the wood used for benches, chairs, etc., was thick and sometimes moulded on the edges. The example in Fig. 14 is of a bench leg. The furniture of the time showed all the characteristic pilasters, bases, capitals and mouldings of classical architecture.

Elizabethan furniture had mouldings really suitable to wood. The Elizabethan workers were good craftsmen and we have many examples of their work. Their knowledge of renaissance detail they used with rich and fine effect. In the four-poster beds of the period they had opportunity for a sort of architecture in wood. They carved lavishly. Carved mouldings are characteristic of Tudor furniture. Fig. 15 is a peculiar pattern, cut from the solid as a cornice, that the writer has been able to illustrate. Other examples of carved mouldings are common to-day. That illustrated in Fig. 16 is typical and is called a *nulling*. It could be carved on either a thumb or broken ogee base. (Figs. 17 and 18.)

The mouldings of the Jacobean period were also often carved. Fig. 19 is an example from the cornice of a corner cupboard. The cornice of this cupboard occupies about 7 ins. and the plinth is 9 ins. deep. All this to the modern designer is so much wasted wood, and this is yet another reason why mouldings are absent from modern furniture.

Ornateness in mouldings is characteristic of the Queen Anne period, but the Adam and Sheraton periods show a gradual return to the gracefulness of the classic elements. The Adam brothers especially used classic detail. Chippendale's decorated work is often regarded as being too ornamental. He sometimes used turned mouldings. Fig. 20 shows a small twist moulding, used on a chair of his design. Sheraton's work is unsurpassed for balance, harmony and lightness.

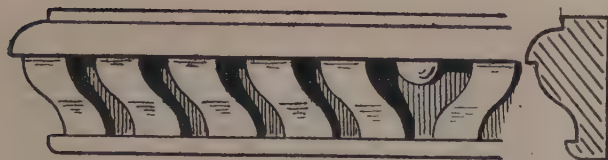


FIG. 15. A QUAIN TUDOR CORNICE.

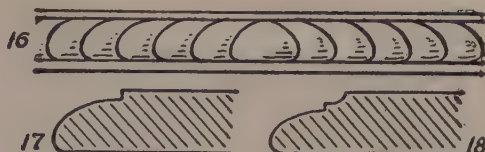


FIG. 16. NULLING. FIGS. 17 & 18. SECTIONS.

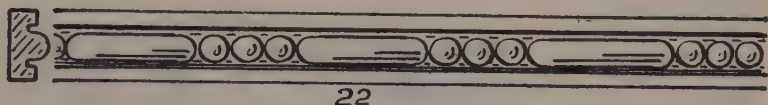
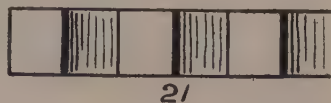
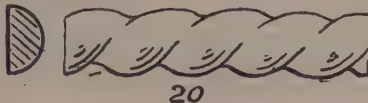
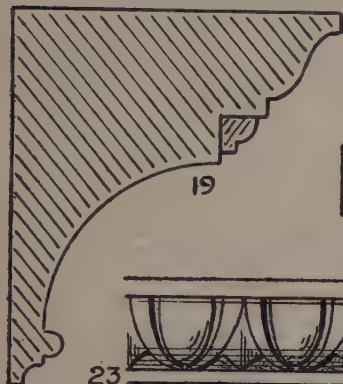


FIG. 19, CORNICE FROM JACOBAN CUPBOARD. FIG. 20, HALF TWIST MOULD. FIG. 21, GREEK DENTIL. FIG. 22, CARVED ASTRAGAL. FIG. 23, EXAMPLE OF EGG AND TONGUE MOULD. FIG. 24, FRETTED MOULD.

It is on the foundations laid by the brilliant mid-Georgians that furniture makers are still building. Adaptation there must be a little of, but originality must be expressed, a style must be evolved, of which posterity will be a better judge than ourselves.

The decoration by mouldings of the different types of furniture has been conditioned by the materials used and by the general character of the furniture. The boldness of line in Elizabethan furniture together with the material used—oak, made for a boldness of decorative detail. In Sheraton and modern work the elegant proportions call for less heavy ornament. In

modern use are many different types of mouldings for different purposes and many variations on the carved style. The bead is made into the half-round twisted, and enlarged and carved to form the astragal section mouldings. An astragal section carved moulding is illustrated in Fig. 22. The fillet is treated, in the manner of chip-carving and made into the Greek dentil, Fig. 21. There are almost endless variations on the egg and tongue pattern, Fig. 23. A modern innovation is the fretted moulding (example Fig. 24), while the varieties of architrave, frieze, bead, panel and picture-frame moulding are best left to the reader's own observation. (141)

HOME CARPENTRY (Continued from Page 170).

Spokeshaves may be sharpened by unshipping the blade and rubbing the edge on an unboxed oilstone or on a square oilslip. The sharpening should be accomplished from the inside of the blade and the roafe or wire edge should not be removed from the outside as is the case when sharpening a chisel or a plane iron. The wire edge formed by sharpening will remove itself when the spokeshave is put into action. If it is removed with an oilstone, the cutting edge will become dubbed off and the blade will soon cease to function. After spokeshaving the edges of the shapings it will be necessary to glasspaper them.

The following timber will be required:—

	Long. ft. ins.	Wide. ins.	Thick. ins.
2 Step sides (cut to make two pieces B and two short pieces above B)	2 11	3	$\frac{1}{2}$

	Long. ft. ins.	Wide. ins.	Thick. ins.
1 Piece (cut to make two pieces A)	2 2	2	$\frac{1}{2}$
1 Piece (cut to make two back legs C)	3 6	2	$\frac{1}{2}$
1 Step to hinge to seat ...	1 4	4 $\frac{1}{2}$	$\frac{1}{2}$
1 Seat	1 4	10	$\frac{1}{2}$
1 Top step	1 4	4 $\frac{1}{2}$	$\frac{1}{2}$
1 Bottom step (D)	1 2	4	$\frac{1}{2}$
1 Shaped piece (E)	1 5	3 $\frac{1}{2}$	$\frac{1}{2}$
2 Stiles for chair back ...	2 8	1 $\frac{1}{2}$	$\frac{1}{2}$
1 Shaped rail	1 4	2	$\frac{1}{2}$
1 Ditto	1 4 $\frac{1}{2}$	2 $\frac{1}{2}$	$\frac{1}{2}$

Clean red deal, machine planed and free from knots, to finish approximately $\frac{1}{2}$ in. thick after planing; nails; screws; shellac varnish or concentrated size and oil varnish; 1 pair 2 in. steel back flap hinges, with $\frac{1}{2}$ in. screws to suit the countersunk holes. (276)

OAK LIVING ROOM SUITE

4 FT. 6 IN. SIDEBOARD

THE sideboard shown in Fig. 1 is the second article of our new living-room suite which began in April with the dining-table. The small rooms of either a flat or modern house restrict the size of the furniture, so that the overall sizes of this sideboard will be found very well suited to the average living-room.

Two deep drawers are provided at the top, the left for table linen and other necessities, whilst the right-hand drawer facing might be lined and divided for cutlery. There are two spacious

cupboards underneath, fitted with a shelf inside, but this arrangement might easily be varied in the left cupboard in favour of having a shelf only half the depth, to allow tall bottles or a tea-tray to stand in front of the shelf.

STOOL CONSTRUCTION.—Fig. 3 shows the decoration suggested for the legs. First proceed to bowsaw or bandsaw to the required shape on all four faces. Scribe the positions of the three reeds, each $\frac{1}{2}$ in. wide, upon each face and then work carefully to the required section with a suitable gouge.

As the legs run right up through and the stool rails are mitred over the front, the legs (A) must be cut back as shown in Fig. 3. The front corners of the end rails (C) and front rail (B) are mitred, and the back rail (D) taken into the end rails (C) and screwed through. A centre cross-rail might be dovetailed into the front and back rails if desired. Finally, to secure the stool rails to the legs, glue on the front and screw through the two inside faces of the legs into the stool rails.

CARCASE CONSTRUCTION.—Select mild and dry stuff for the ends (I) and top (J), whilst plain oak will suffice for the bottom board (K). Commence the construction by carefully shaping the ends as plotted to 1 in. squares in Fig. 6. Trench across grain at the top for the carcass top (J) to a depth of $\frac{1}{2}$ in. and stop the grooves about 1 in. from the front. A rebate, $\frac{1}{2}$ in. deep, will be needed for the bottom board on each bottom edge of the ends, and these must also be stopped about 1 in. from the front edge.

Cut a mortise in each end for the drawer rail (M) to a depth of $\frac{1}{2}$ in. Fig. 4 clearly illustrates the carcass construction. Work also a rebate on the back edge of each end, $\frac{1}{2}$ in. wide and $\frac{1}{2}$ in. deep, for the carcass back (T), and stop these two rebates at the underside of the back ledge (O).

Proceed next to find the centre lines of the top and bottom, and place edge to edge in line across grain. Scribe and groove each board $\frac{1}{2}$ in. deep by $\frac{1}{8}$ in. wide for the inside end (S). Stop the grooves 2 in. in from the front edge to allow

for a mortise in each board for the pilaster (L) to a depth of $\frac{1}{2}$ in., as shown in Fig. 4.

Gauge and cut a tenon, $\frac{1}{2}$ in. long, each end of the drawer rail and pilaster to enter the mortises already worked in the ends, top and bottom respectively. Half-lap the drawer rail with the pilaster at their meeting place (Fig. 4), and then groove the pilaster for the inside end (S) to a depth of $\frac{1}{2}$ in. Of course the drawer rail must be grooved $\frac{1}{2}$ in. deep on its inside edge for the dustboards (X). The skeleton

carcase might now be constructed. Glue the pilaster and inside end into the top and bottom, half-lap the drawer rail over the pilaster and then clamp on the ends (I), finally completing by screwing the bottom board up into the ends.

Rebate the back ledge for the carcass back right through, and fit neat between the ends. Fix by screwing into the top from the back before finally screwing on the carcass back. Alternatively, this ledge might be tenoned into the ends (I) and cramped up with the job, or even carried over and mitred with the ends. To avoid unnecessary work, the first mentioned method is recommended.

Groove the runners (M) to a depth of $\frac{1}{2}$ in. for the dustboards and cut a tenon, $\frac{1}{2}$ in. long, on the front edge to enter the groove already cut in the drawer rail. Screw these runners only to the ends, without glueing. Slip the dustboards in from the back and leave dry in their grooves.

Guides will be required next to the end (S) on top of the runners (N) for the drawer sides to run against. These could be of whitewood.

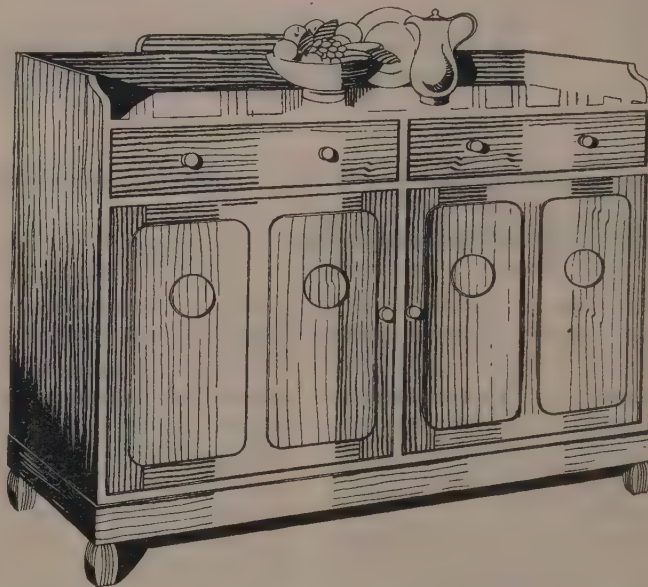


FIG. 1.—OAK SIDEBOARD—4 FT. 6 IN. LONG.

The drawer sides must needs run against the ends (I) and so must be made to run and fit accurately, the sides being afterwards greased with tallow.

As the top edges of the drawer sides run against the underside of the top, no kickers will be needed. This completes the carcase, and the stool frame might now be fixed on, either by pocket screwing up into the bottom through the rails B, C and D, or by buttons, or by screwing through the bottom into the stool rails.

DRAWER CONSTRUCTION.—Mild, quartered stuff should be first choice for the drawer fronts (E). The sides are lap dovetailed into these, whilst the backs (R) are through dovetailed.

Rebate the drawer bottom in the left-hand drawer, three sides entering the groove in the drawer front and slips being fitted to the sides. Slip the drawer bottom in from the back, leave dry in the drawer front and slips, finally securing by slotting and screwing into drawer back.

As the right-hand drawer is to be lined it must have a flush bottom and slips. Dovetail up after having worked the sides and back to the details supplied in Fig. 6. Work a quirk all

round, $\frac{1}{4}$ in. down from the top edges, to finish the baize against and to hide all ragged edges. A suitable section for a drawer and door-knob is given in Fig. 5. These should be turned and the pin run right through the drawer front and wedged firmly from the back. Alternatively, these knobs might be fox-wedged from the front, thus saving unsightly wedges on the back of the drawer fronts. A suitable till lock, $\frac{3}{4}$ in. to pin, with a brass thread escutcheon, might be introduced for the silver drawer.

DOOR CONSTRUCTION.—A general idea of the method of construction is given with Fig. 7. The rails (G) are haunch tenoned into the stiles (F), whilst the centre stiles (H) are tenoned into the rails. All tenons are allowed to a length of $1\frac{1}{2}$ in., and the mortises to correspond must be cut to a similar depth. Shape the door panels (V), which are of plywood faced oak two sides, and fix these to the frames by glueing and pinning, stopping the pin-holes after with wax. Glue the pateras (W) on to the panels and also pin through. Finally, hinge the doors to the carcase and fit a bullet catch on the bottom edge

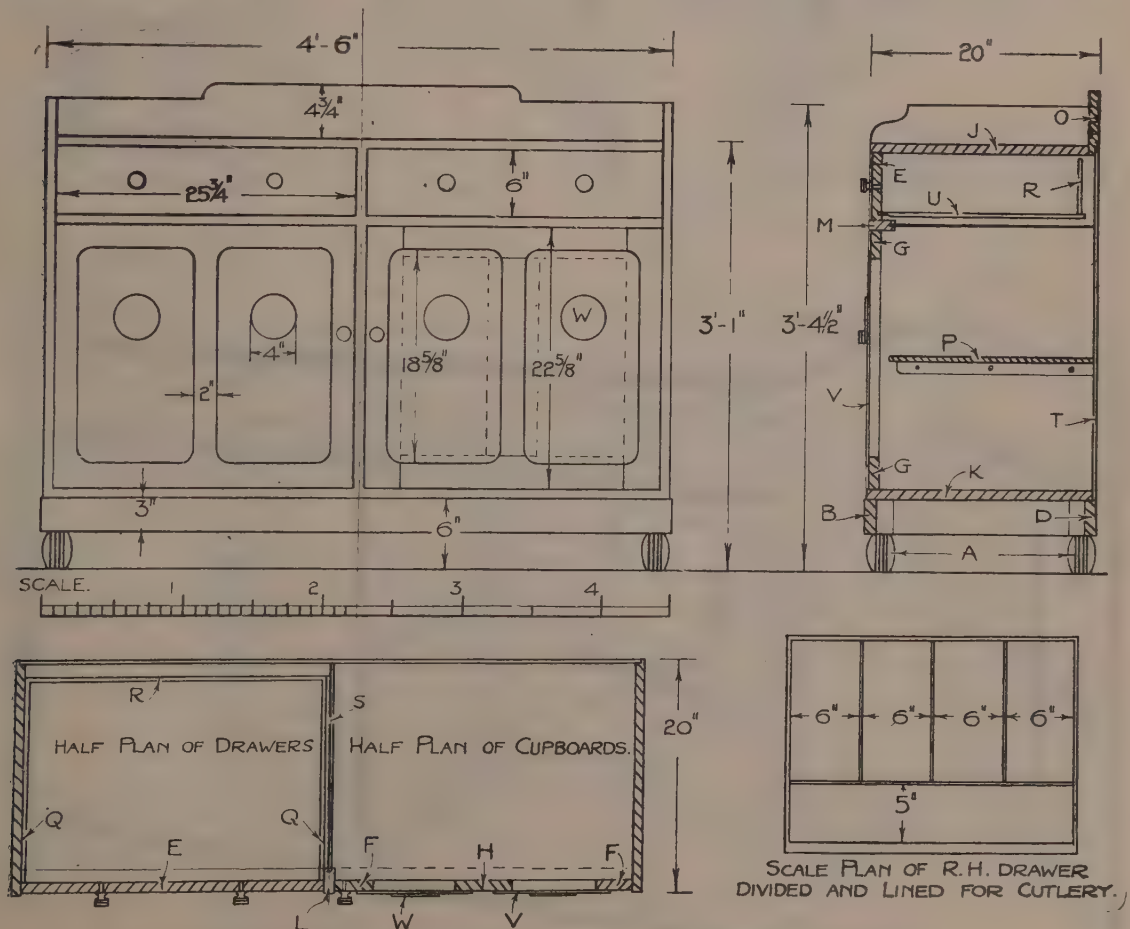


FIG. 2.—SCALE ELEVATION, SECTION, PLAN, ETC., OF 4 FT. 6 IN. SIDEBORD.

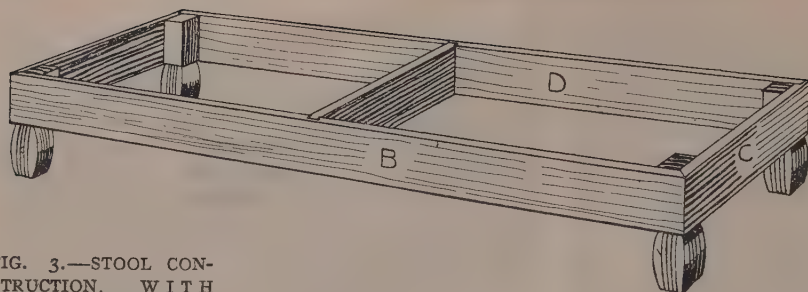


FIG. 3.—STOOL CONSTRUCTION, WITH ENLARGED DETAILS OF FEET AT RIGHT.

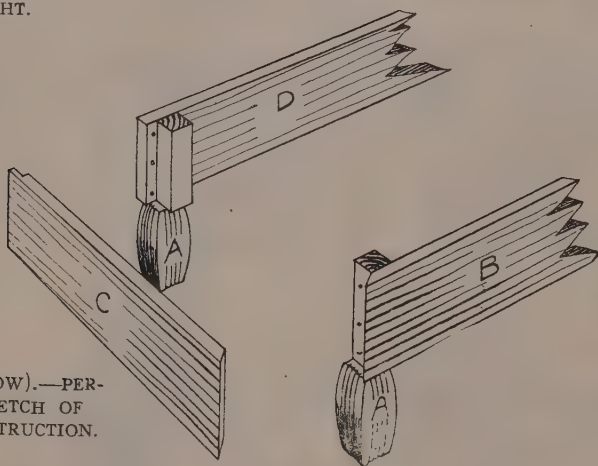
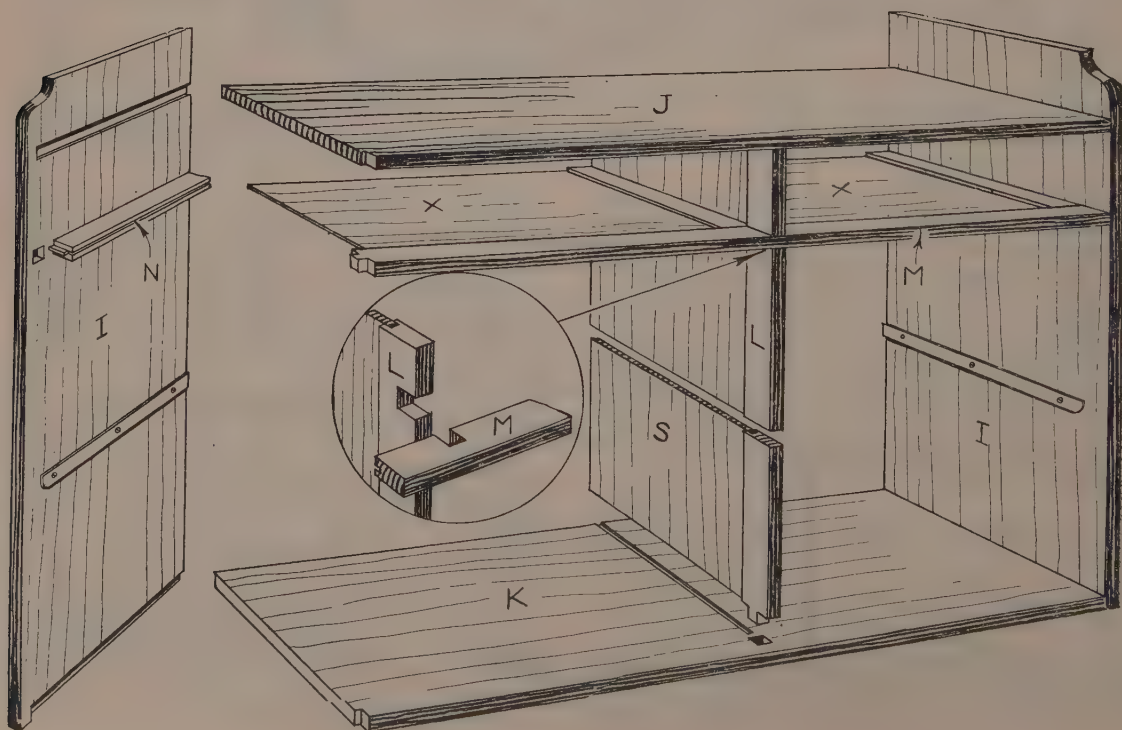


FIG. 4 (BELOW).—PERSPECTIVE SKETCH OF CARCASE CONSTRUCTION.



of each near the centre.

Clean down the whole job with fine glasspaper ready for polishing. Blue oak, nut-brown or a natural waxed finish would be suitable.

CUTTING LIST:—

	Long.	Wide.	Thick
	ft.	ins.	ins.
A 4 legs	0	6	2 $\frac{3}{8}$
B 1 stool rail	4	6 $\frac{1}{2}$	3
C 2 stool rails	1	8 $\frac{1}{2}$	3
D 1 stool rail	4	5 $\frac{1}{2}$	3
E 2 drawer fronts	2	1 $\frac{1}{2}$	6
F 4 door stiles	1	10 $\frac{1}{2}$	3 $\frac{1}{2}$
G 3 door rails	1	9 $\frac{1}{2}$	2 $\frac{1}{2}$
H 2 door stiles	1	8 $\frac{1}{2}$	4 $\frac{1}{2}$
I 2 ends	2	10 $\frac{1}{2}$	20
J 1 top	4	4 $\frac{7}{8}$	19 $\frac{1}{2}$
K 1 bottom	4	5 $\frac{1}{2}$	19 $\frac{1}{2}$
L 1 pilaster	2	6 $\frac{1}{2}$	2 $\frac{1}{2}$
M 1 drawer rail	4	5 $\frac{1}{2}$	2 $\frac{1}{2}$
N 4 drawer runners	1	5 $\frac{1}{2}$	1 $\frac{1}{2}$
O 1 back ledge	4	4 $\frac{1}{2}$	5 $\frac{1}{2}$
P 2 shelves	2	2	18
Q 4 drawer sides	1	6	6
R 2 drawer backs	2	1 $\frac{1}{2}$	5 $\frac{1}{2}$
S 1 inner end	2	5 $\frac{7}{8}$	17 $\frac{1}{2}$
T 1 back	4	5 $\frac{1}{2}$	30 $\frac{1}{2}$
U 2 drawer bottoms	2	0 $\frac{1}{2}$	18 $\frac{1}{2}$
V 4 door panels	1	6 $\frac{1}{2}$	9 $\frac{7}{8}$
W 4 pateras	0	4	4
X 2 dustboards	1	11 $\frac{1}{2}$	17 $\frac{1}{2}$

Sizes are net and allowance must be made for cutting, etc. As a guide to timber, items A, B, C, E, F, G, H, I, J and O, should be quartered oak. Plain oak will suffice for items K, L, M, P, Q, R and S. Items V must be of oak-faced plywood. Carcase back T might be of $\frac{3}{8}$ in. birch ply.

(223)

SEE APRIL NUMBER for design of dining table. The other items of this suite are the secretaire and the chairs.

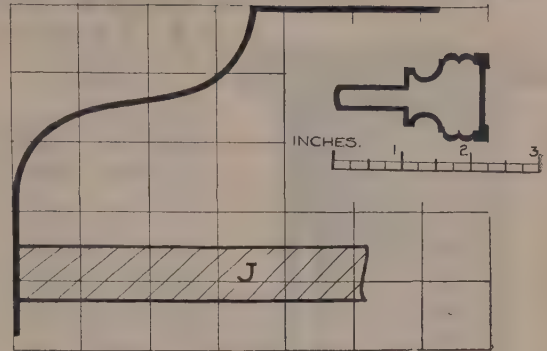


FIG. 5.—DETAIL OF ENDS (1 IN. SQUARES); ALSO KNOB.

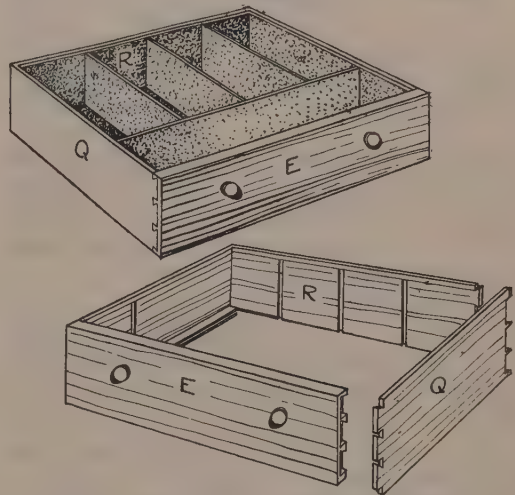


FIG. 6.—SILVER AND CUTLERY DRAWER.

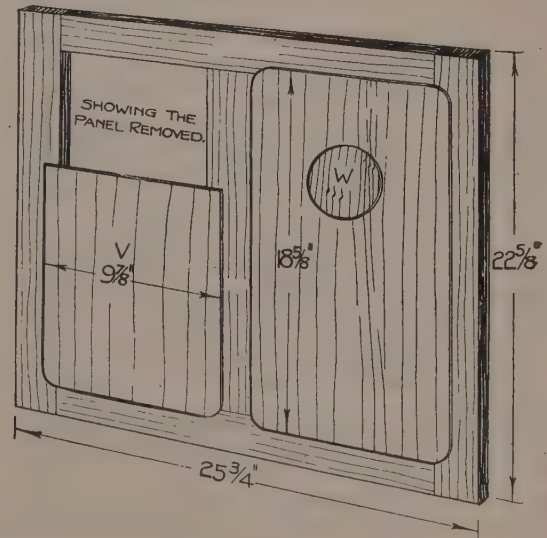
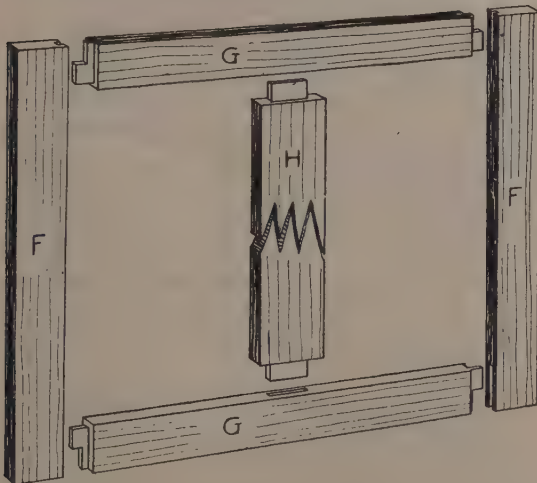


FIG. 7.—SKETCHES SHOWING METHOD OF DOOR CONSTRUCTION.

THE EVER-HANDY GAMES TABLE

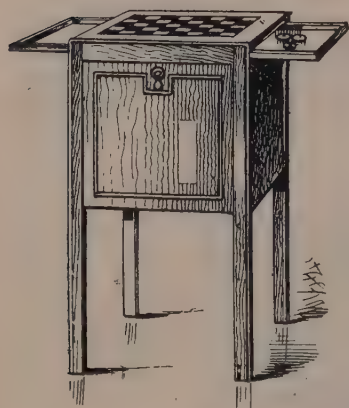


FIG. 1.—GAMES TABLE.
HEIGHT, 28 INS.; TOP, 15 INS.
SQUARE, WITH PULL-OUT TRAYS.

the top may be permanently in sight and the table provided with pull-out slides or shallow trays, as in Fig. 1. A fall front is provided for enclosing the cabinet portion. Oak is suitable for use, and if finished to a medium light shade with bright polish the effect should be successful.

Dimensions for the chequered top would be 1 ft. 3 ins. by 1 ft. 3 ins., the height of the table being 2 ft. 4 ins. With a folding top this should open to 2 ft. 6 ins. by 1 ft. 3 ins., whilst pull-out slides if fitted should extend about 5 ins. on either side, these being fitted with a lip edge about $\frac{3}{4}$ in. high which should give sufficient projection for containing the draughtsmen when pushed home under the chequered board.

FOR THE LEGS (A) four pieces as straight and regular in grain as possible should be selected to finish $1\frac{1}{4}$ ins. by $1\frac{1}{4}$ ins.; they will require slotting for dovetails above in addition to mortising for tenons on ends, and are finished with a $\frac{1}{2}$ in. bead worked their full length on the outer angle. The rails (B), front and back, should finish 2-ins. wide by $\frac{3}{4}$ in. thick, preferably dovetailed into position, although they may be dowelled if desired.

THE CABINET ENDS (C) may be fitted from pieces 1 ft. 2 ins. by 1 ft. 2 ins. high by $\frac{3}{4}$ in. or $\frac{1}{2}$ in. with the grain to run horizontally and cut to enter legs with three tenons which may be pegged when home and also mortised or rebated to receive cabinet bottom. A rail (D) $\frac{1}{2}$ in. by $\frac{3}{4}$ in., may be dovetailed into position so that a space of $\frac{1}{2}$ in. full is left between itself and the cabinet ends, thus forming a channel for the slides to pass through.

THE BOTTOM (E) can be mortised and tenoned in as indicated, or may be notched at corners and screwed up to ends rebated to receive them, the whole thing being then further stiffened by glue-blocks or by the entry of screw plates into the inner angles of legs below. Within the cabinet a shelf (F) can be fitted to rest upon $\frac{1}{2}$ in.

A GAMES TABLE is almost indispensable in the living room, and the type of cabinet table shown here has a compactness and neatness in appearance which will appeal to the man who is on the look out for something not quite commonplace.

The table may have the chequered board enclosed by a folding top, or

by $\frac{3}{4}$ in. slips notched into legs and screwed or nailed to sides.

THE FALL (G) will be hinged to this bottom, its height allowing a projection below the bottom itself for the purpose of obtaining a bearing when down. It is further held by lengths of brass chain. The part may be in one piece clamped at each end with $1\frac{1}{4}$ in. clamps tongued on, or in the best manner the fall might be mitre-clamped for a flush surface. By way of relief a $\frac{1}{2}$ in. bead is mitred up to form a panelled effect, the detail being glued and panel pinned on and made with a break in centre above sufficiently deep to allow a drop handle to lie within it as Fig. 1. When up the fall may be secured in position by means of a bullet catch.

THE SLIDES (H) can finish about $7\frac{1}{2}$ ins. long, which would mean that they could be safely extended to a distance of about 5 ins. To support them and enable them to travel freely, slips are provided notched into position round leg and glued or screwed (J, Fig. 4), or in another way the slides may be made to travel upon a rounded bead or tongue. A parting rail (K) will be formed by a slip $1\frac{1}{4}$ ins. by $\frac{3}{4}$ in., to be either dovetailed or plain grooved into both front rail (B) and the corresponding back rail, thus forming a stretcher against which the slides will stop and upon which the chequered board itself will bed when fitted.

THE CARCASE BACK (I) may be of 5 mm plywood rebated in and screwed, or it may be framed up of $1\frac{1}{2}$ ins. by $\frac{3}{4}$ in. net stuff with plywood panel as noted in Fig. 4.

THE CHEQUERED BOARD (L) might next be dealt with, its exact size being ascertained from the cabinet on a trial fit-up. Ready-made boards, inlaid with white and brown or white and black squares, are obtainable from all dealers in woodwork sundries at a very low price.

Fig. 1 indicates the chequered board as being permanently exposed, but as some prefer to cover the squared top from view when a game is not in progress, the reminder may be given that it can be enclosed by a pair of lids hinged to

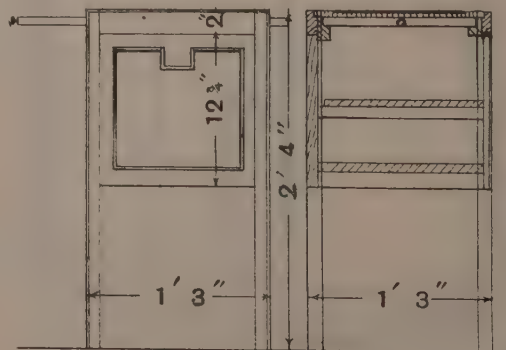


FIG. 2.—FRONT
ELEVATION.

FIG. 3.—SECTIONAL
SIDE VIEW.

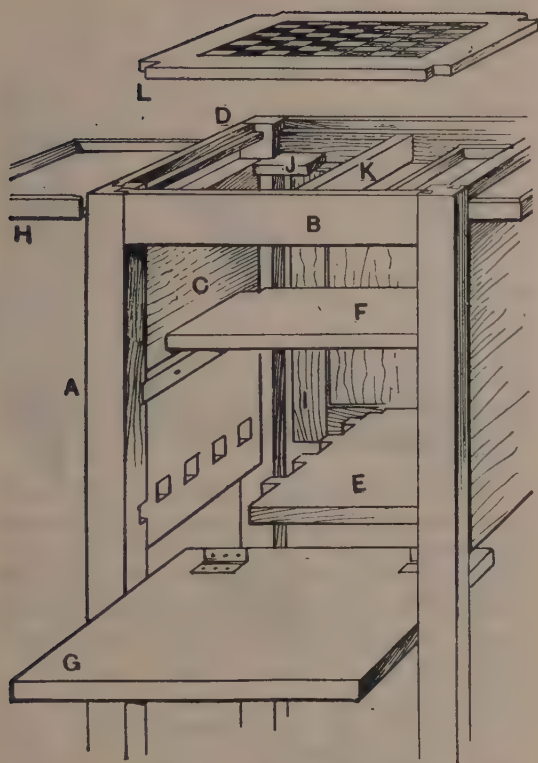


FIG. 4.—GENERAL VIEW OF CONSTRUCTION.

sides, and if this method is adopted the pull-out slides or trays previously mentioned may be dispensed with. In making up these lids it will be desirable to clamp them with $1\frac{1}{2}$ in. clamps, thickness being $\frac{3}{8}$ in. net. (242)

Making a Chequered Board

IN the simplest manner a very good chequered board can be quickly obtained by setting out the 64 squares $1\frac{1}{2}$ ins. by $1\frac{1}{2}$ ins. on a sheet of Whatman's "hot-pressed" paper, drawing them in with Indian Ink and mounting this by glueing upon a board of $\frac{3}{8}$ in. thickness, or slightly less if plywood is used. The squares can then be alternately coloured in the usual manner with an indelible ink. The board may be rebated into position and secured with about eight panel-pins neatly punched home.

If indelible ink is used for the colouring the board may be safely varnished or polished with good lasting result.

The board could in another way be made up of slips faced up with ebony and satinwood, holly or box, glueing up the dark and the light wood alternately in the manner indicated in Fig. 1. These slips would be $1\frac{1}{2}$ ins. wide by $\frac{3}{8}$ ins. thick, shot clean and true. When thoroughly dry square off one end of the glueing and from this end mark off

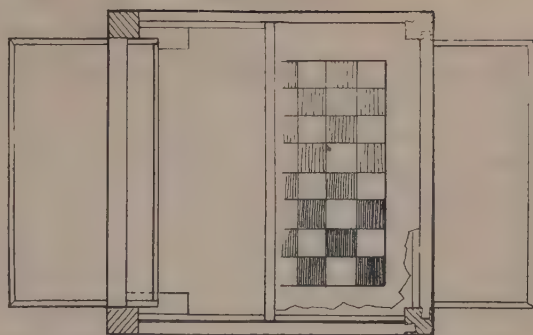


FIG. 5.—PLAN OF TOP, SHOWING SLIDES.

widths of $1\frac{1}{2}$ ins. for cutting, thus giving the eight lengths required as at Fig. 2. Trouble is saved later if an additional dark strip is glued on at the foot—that is, 9 squares horizontally.

The baseboard should then have the eight lengths of chequered squares glued down to it, reversing the lengths so that the black and white squares come alternately. The advantage, however, of having the extra slip at the foot will be obvious, the odd squares being cut off later.

For a really attractive finish to the chequered board, something can be achieved in enamelled leather by the careful hand.

A square of red morocco leather is first cut to full size and laid on wood. Seccotine diluted with hot water or stiff shoemaker's paste is good to use for fixing, the leather being then placed under pressure till dry. Next square the panel and mark off the divisions of squares. Each "white" square is then covered with white or cream enamel. If the dividing lines are carefully gone over with an agate point, or bone spill, so as to depress them slightly a channel will be formed for gilding. Gold bronze powder mixed with japan gold size can be used for this.

This chequered panel is intended to be covered with a square of plate glass very accurately cut to size of opening to drop in and be fixed with seccotine or other cold adhesive. (243)

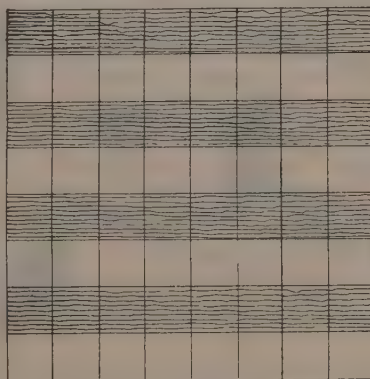


FIG. 1.—INLAID CHESS BOARD.

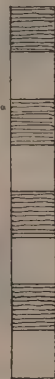


FIG. 2.

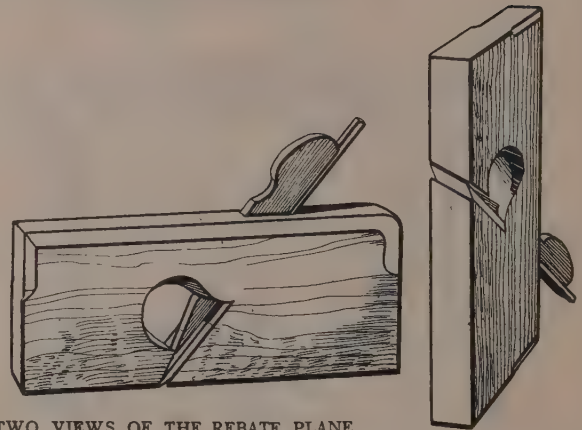
NOTES FOR THE NOVICE

ON THE USES OF THE REBATE PLANE

A READER has asked if it is essential for a rebate plane to have a skew cutter or blade, and how can a novice who has not got a rebate plane cut a rebate on the legs or rails of a cabinet or similar job? "To my knowledge," he adds, "I have never seen a rebate plane."

In the sketches here we show two illustrations of a skew-mouthed rebate plane and, considering that it is over seven years since we illustrated this type of plane, we owe no apology to older and more experienced readers. It is not essential that a rebate plane should have a skew mouth and blade, but the skew-mouthed type certainly works with more freedom and is less likely to tear the wood fibres than a plane having a mouth at right angles to the side of the plane.

Fig. 1 illustrates a piece of wood marked out for a stopped rebate. The first step is to mark the gauge lines (GG) at the required positions with a marking or a cutting gauge. Make a series of saw kerfs as indicated and then saw away the corner pieces (A). Using a chisel and mallet start to chop away the wood as at Fig. 2 (left hand), and then gradually pare out the recess or rebate, removing the corner or arris



TWO VIEWS OF THE REBATE PLANE.

(B) and finish by chiselling out the stopped ends as sketched.

If the wood is straight-grained and soft it may be unnecessary to make the saw kerfs as at Fig. 1, but for curly grained hardwoods the saw kerfing is advantageous. If the worker has a

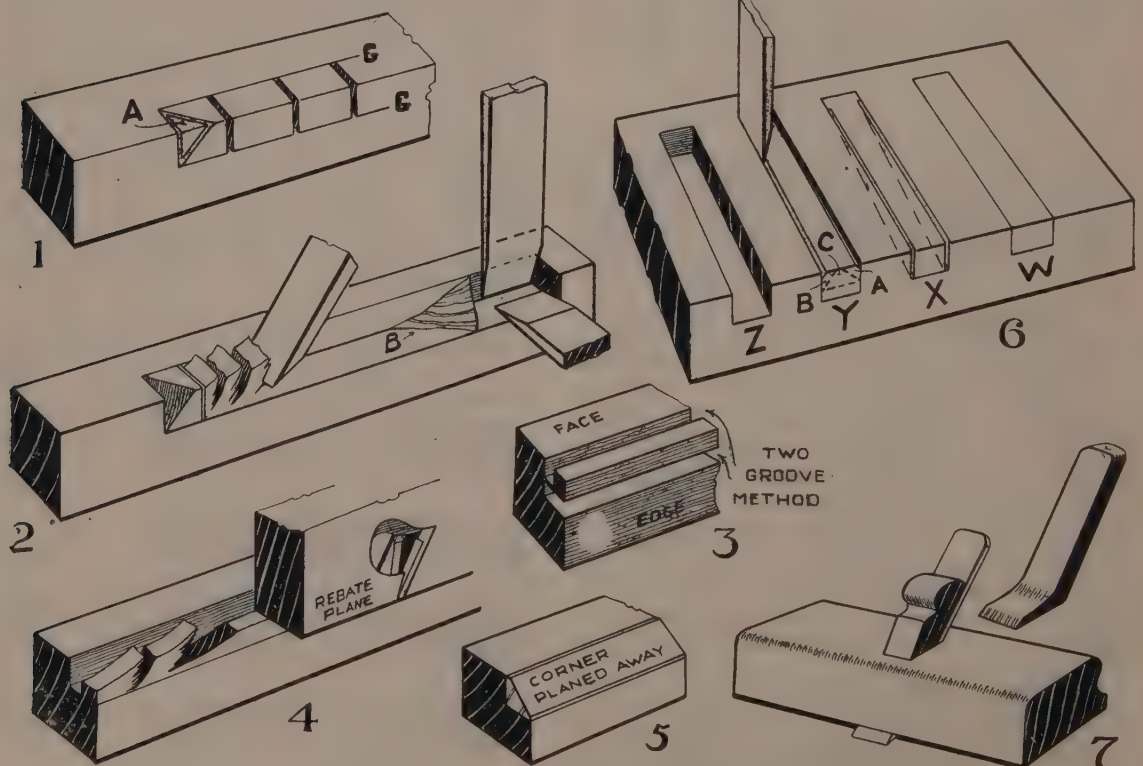


FIG. 1.—MARKING FOR A STOPPED REBATE. 2.—CHOPPING AND PARING. 3.—TWO-GROOVE METHOD. 4.—WORKING THE GROOVE. 5.—WORKING A CHAMFER. 6.—STOPPED HOUSINGS. 7.—ROUTING PLANE.

plough plane or a suitable grooving plane he can work out a certain amount of the wood between the stopped ends with the plane, but he will have to finish up his work with a chisel or a bull-nosed plane.

At Fig. 3 is illustrated the method of cutting two grooves with a plough or with a suitable grooving plane so that a rebate is formed when the corner piece is broken or sawn away, and it is usual to keep this corner strip and use it as a bead to fasten in the glass or the panel, etc. The rebate in this case has not got stopped ends.

Fig. 4 depicts how one groove is first worked away with a plough or with a suitably sized grooving plane; after this grooving operation the remaining wood is wasted away with the paring chisel and finished off with a rebate plane.

At Fig. 5 is shown how the bevel or chamfer may be worked away with a jack plane, after which chiselling operations similar to those shown at Fig. 2 and 4 will complete the rebate. If a stopped rebate is required the corner (as at Fig. 5) may be wasted away with a spokeshave having a fairly keen bite on its blade; chiselling will again have to be resorted to so as to complete the rebate.

Stopped rebates are, of course, best dealt with on a vertical spindle moulding machine when they can be machined after the frame has been glued together. Most joinery shops having woodworking plant will rebate a frame for the amateur, after he has glued it up, at a very reasonable fee.

Fig. 6 illustrates the making of a stopped

housing or trench to accommodate a shelf for a cupboard, etc., as asked for by another querist. The work is marked out with a sharp knife (W) and gauged to the required depth. If the board is fairly narrow the worker may make two diagonal saw cuts at the boundary of his housing (X) and the paring chisel will remove the core by repeated chiselling operations. To ensure the bottom of the trench or housing being true and level a small routing plane is used as at Fig. 7.

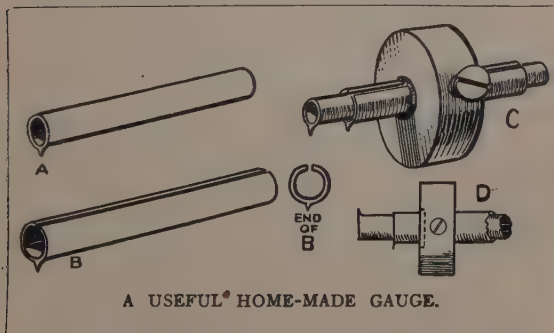
Another method is to cut slight channels at the boundary of the housing (Y), after which vertical stabs are made into the wood as suggested by the chisel blade at Y. The wood is then wasted away by horizontal paring with the chisel; first cutting line (A), then line (B), after which the apex (C) is removed as suggested by the horizontal dotted line.

The sequence of cuts A, B and C may have to be repeated a second time, after which the bottom of the housing is finished off with the router or old woman's tooth plane (Fig. 7). The blade of the router plane is also shown separated at Fig. 7.

There is on the market a special plane (Howkin's patent) which severs the cross fibres of the wood and planes away the bottom of the trench at one and the same operation. The cutter is adjusted by a knurled thumb-screw as the plane is worked to and fro. Another type of plane, having the appearance of a rebate plane with side cutters, is made by Messrs. W. Marples and Son Ltd., of Sheffield, in various sizes to suit the thicknesses of stock shelving. (246)

THREE-IN-ONE GAUGE.—I am a joiner, and whilst working alongside some workmen who were running electrical wires I picked up some short ends of steel tubing and made what I call my three-in-one gauge. I fancy its usefulness will be appreciated by other readers. All they have to do is to select two pieces of tube so that one nicely slides inside the other, and cut and bend the marking spur as suggested at A and B. Then take a hack saw or file and split the tube (B) lengthways. Make a stock for the gauge either out of hardwood or preferably get one cast in metal. C shows the completed gauge set

as a mortise gauge. Sketch D shows the inner tube (A) reversed, and it is used in this position for gauging when fitting hinges. For instance, the wing of the hinge would be gauged by the inner tube and the thickness of the knuckle would be gauged by the outer tube. The gauge is thus used for both purposes when hingeing, with one setting. The stock is slightly sunk so that the tubes can be placed in such position that the spurs are protected when not in use. A small hardwood or brass pad may be fitted under the screw in the stock to prevent the screw point from damaging the tube. If it is not possible to procure two pieces of tube to slide one within the other, a piece of hardwood which carries a piece of broken knitting needle may be used instead of tube A.—JAMES BELL (Glasgow). (266)



A USEFUL HOME-MADE GAUGE.

A GOOD PREPARATION FOR THE STUDY OF TIMBER is to get to know the exterior characteristics of trees, as we see them growing in the country, in the public squares of our big towns, or at Kew. It is necessary to study not only the details of leaf and bark, but the actual structure of the trees, so as to be able to recognise them at a glance. Any ordinary handbook on trees will give the necessary details, and a little perseverance and careful observation on our part will soon do the rest.

LABOUR-**SAVING** KITCHEN FITMENT

THE fitment sketched at Fig. 1 was designed for a small kitchen scullery where it was found impossible to accommodate one of the new style kitchen cabinets. The fitment has been found very convenient and labour saving, and when not in use does not encroach on valuable space. The cabinet portion is made with a shelf for crockery, and two shelves, enclosed with a pair of doors, for provisions and cooking utensils. The table is hinged, and is supported by a folding frame. The dimensions of the original fitment are shown in Figs. 2 and 3, but these may, of course, be varied to meet individual needs, while details of the construction are shown at Figs. 4, 5 and 6. A soft wood, or any of the hardwoods, of $\frac{3}{4}$ in. thickness could be used for making a fitment of this kind.

THE CABINET is made with two sides, $35\frac{1}{2}$ in. long by 10 ins. wide; a top, 38 in. long by 10 $\frac{1}{2}$ wide; middle shelf, 35 in. long by 9 $\frac{3}{4}$ in. wide; and a bottom shelf, 35 in. long by 9 in. wide. The sides are shaped as at Fig. 4, tenoned up into the top, and the shelves are tenoned into the sides, the top being kept level with the back edges of the sides, and the shelves with the front edges. A bottom rail, 35 in. long by $3\frac{1}{4}$ in. wide,

is lapped $\frac{1}{2}$ in. into the back edges of the sides, and the edge of this rail together with the edges of the sides and top are rebated $\frac{1}{2}$ in. by $\frac{1}{2}$ in. for a plywood back.

IN FIXING THE PARTS together, the shelves and top are first fixed to the sides, the bottom rail is screwed to the sides and the back edge of the bottom shelf, and the ply back is pinned in the rebates. To finish the top, pieces of $\frac{3}{4}$ in. plain or embossed moulding should be mitred around the front and end edges.

THE DOORS of the cabinet are framed with $1\frac{1}{4}$ in. stiles and $2\frac{1}{4}$ in. rails, mortised and tenoned together and rebated for $\frac{1}{2}$ in. panels. The meeting edges of the doors are rebated together, and the doors are hinged and fitted with a bolt and lock in the usual way. The space behind the doors could be divided with a shelf fixed on cleats screwed to the sides, and a plate slip could be grooved into or pinned to the face of the bottom shelf to hold plates in an upright position against the back.

THE TABLE, which is 39 in. long by 22 in. wide, is made in two portions hinged together, the back portion, 3 in. wide, being fixed to the wall under the cabinet. The ends of the front portion of the table are strengthened with 2 in. battens, and a $1\frac{1}{4}$ in. batten is screwed under the back edge of the back portion (see Figs. 3 and 5), screws being run through this batten into the wall. The table is supported when in use by a hinged frame, as at Figs. 1, 3 and 6. The leg of this frame is 29 in. long, the back upright 19 in. long, and the two rails 16 in. long by $1\frac{1}{2}$ in. wide, mortised and tenoned together to the dimensions given at Fig. 3.

A BATTEN, 20 in. long by $1\frac{1}{2}$ in. wide, is screwed to the wall exactly under the middle of the table, and the back upright of the frame is hinged to this batten. (187)

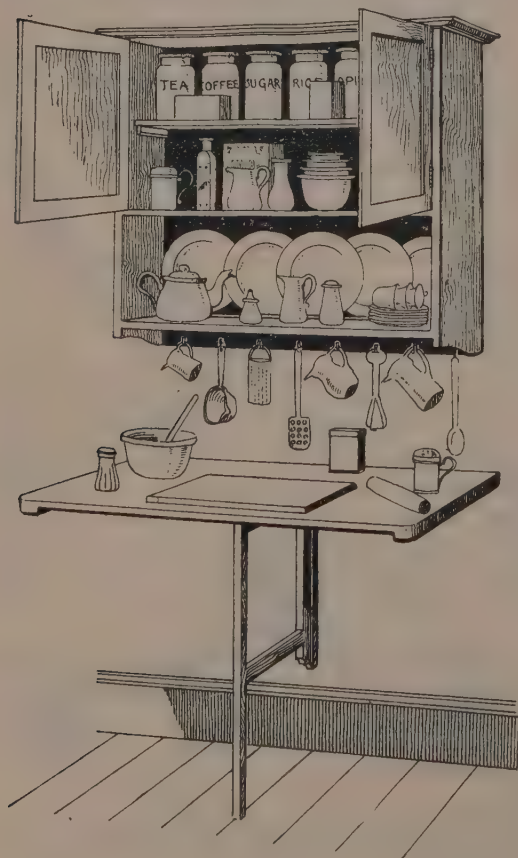


FIG. 1.—KITCHEN CABINET AND DROP TABLE.

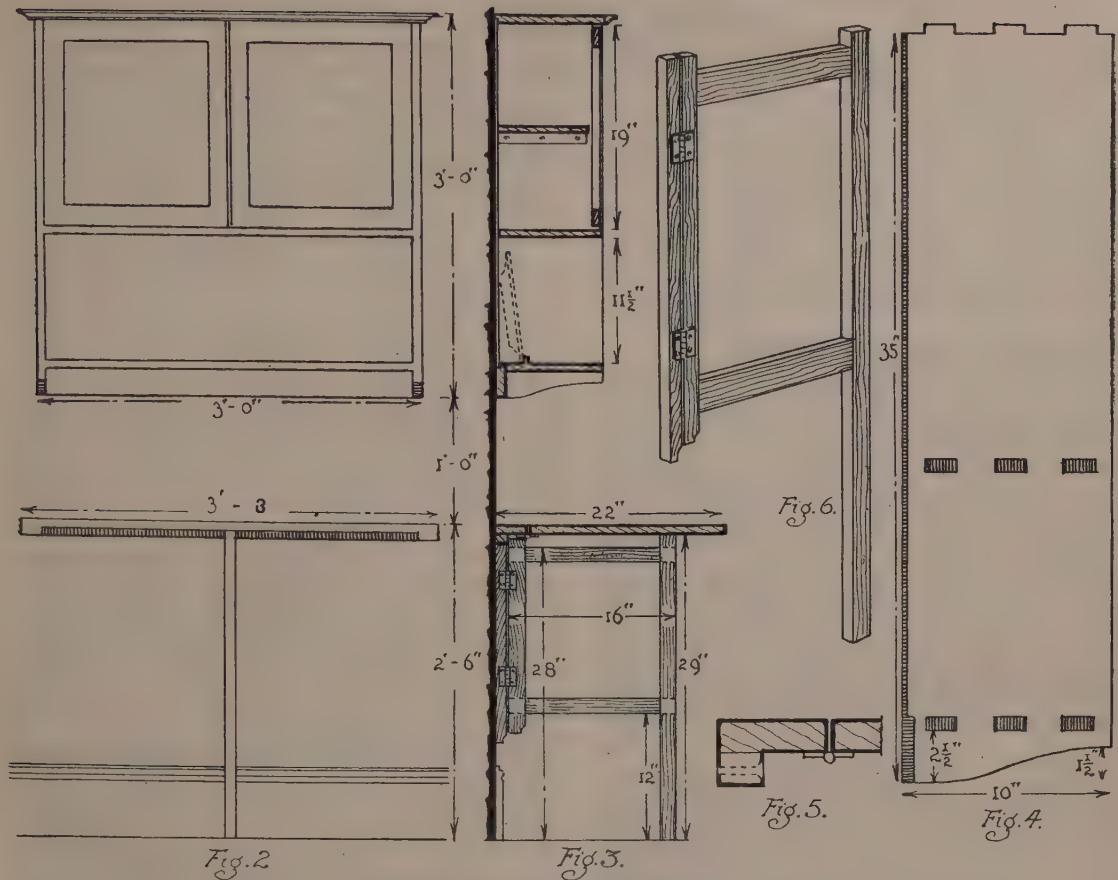
Replica Wood Carvings

THE following is a useful method of reproducing wood carvings, either for the purpose of matching up a piece of furniture or for decorative work. The method has the advantages of being quick, easy and inexpensive. For the reproduction plastic wood is used, this being pressed into moulds taken from some existing piece of carving and allowed to set.

The material for making the moulds is prepared by melting beeswax (4 ozs.) and olive oil (1 oz.) together over a low flame and, when quite liquid, 4 ozs. of sifted starch is slowly stirred in (a little at a time to avoid lumps) until the whole takes on a dough-like consistency. When the wax is cold it will become quite hard.

To make the mould, take the piece of carving to be copied and mount it firmly on a piece of flat board. Build a small retaining wall of plasticine all round it, leaving about $\frac{1}{2}$ in. space

(Continued at foot of next page.)



FIGS. 2 TO 6.—ELEVATIONS, SECTIONS AND DETAILS OF KITCHEN FITMENT.

between the wall and the edge of the carving and making the wall about $\frac{1}{4}$ in. higher than the top of the carving. If the piece to be copied is only the portion of a larger part, then the retaining walls may be built up on the carving itself.

When all is ready the wax is melted and the carving is brushed over with clean water, sufficient being used to damp the whole surface but not to leave any surplus in the recesses. The melted wax is then poured gently over the surface, the best way being to fill up first the deeper parts and then pour over the rest of the surface until the wax rises to the level of the wall; this will produce a strong mould.

When the wax is quite cold (about an hour after pouring) the retaining walls should be removed and the mould will be found to lift off quite easily, provided that the original was not much undercut. Let the mould dry again for about an hour and then wipe over the surface with a little soap to prevent the plastic wood from sticking.

Take the plastic wood, which should be quite soft and pliable, and, using a small quantity at

a time, press it well home into the mould, working down into every recess until the whole is filled. If the mould is a small one it may be filled entirely with the plastic wood and the back finished off smooth, but if a large piece is required it is more economical to cover the face of the mould with a layer of plastic wood about $\frac{1}{8}$ in. to $\frac{1}{4}$ in. thick and cut a piece of scrap wood roughly to shape to fill in the shell.

When finished set aside for twelve to twenty-four hours. It will be found quite easy to separate the mould from the wood, as plastic wood shrinks a little on drying. Trim the rough edges and glass-paper. (179)

"DESIGNS FOR MODERN BEDROOM SUITES."—Complete suites, all of compact and modern design are given, the whole range comprising wardrobes, bedsteads, dressing tables, dressing chests, millinery cabinets, chests of drawers, chairs, cheval glass, dressing stool, cupboards, etc. Price 2/6 net from booksellers and newsagents, or direct from Evans Bros., Ltd., Montague House, Russell Square, London, W.C.1.

POLISHING NOTES

RE-POLISHING OAK BEDROOM SUITES

DURING and following the spring-cleaning season it is not unusual to receive queries asking for instructions for the re-polishing of bedroom suites. It happens that, at the moment, we have several such queries before us. In each case the bedroom suite under consideration is in light oak, the surface of which is bruised and scratched as the result of several removals. As, in the early summer, the re-polishing of a bedroom suite is often one of the big jobs left over after spring-cleaning, a few general hints on the subject may be helpful to many.

Washing and Preliminary Treatment.

PREPARATORY.—Take off the doors, the hinges and handles, etc., placing at the back of each hinge and handle a tally mark which will enable you to re-fit the brasswork in its original position. Wrap up the screws in separate paper packets and label them. Then carefully take out the mirrors, if any, and put them safely away with the marble or tiles which belong to the washstand.

Half fill a lading can with luke-warm water and dissolve in this a piece of washing soda the size of a walnut. Thoroughly wash down the suite with the weak soda water, feeding the washing cloth with monkey brand soap. Sponge down with clean water and thoroughly dry the work with warm dusters or similar cloths. After the washing, leave the suite to dry thoroughly for at least two days.

Look over the woodwork for deep bruises and attempt to raise them as follows:—Dip a piece of brown paper in warm water, fold it double and lay it on the bruise. Take a hot poker (not red hot) and place it on the folded brown paper which is on the top of the bruise, and the steam thus generated will swell up the bruised portion of the wood until it is level with the surrounding parts.

If after one or two applications of the brown paper process the wood does not swell up, it may be taken that some of the original wood has been removed and you will have to resort to filling up the indentations by applying self-coloured plastic wood to the job. To make sure that the plastic wood will adhere properly it is a good precaution to bore one or two holes into the bottom of the bruise with a bradawl point. The idea of this is to give a "key" to the plastic filling so that it will not dry out. After swelling up the bruise the work should be allowed to stand for at least two days so that the moisture will dry out and allow the raised fibres to harden.

How to Apply the Polish.

RE-POLISHING.—On again taking up the work it should be thoroughly glass-papered with No. 1 grade paper. It may, if very rough, be advisable to use 1½ grade paper on the swollen portions. Dust the work after glass-papering, and then take a swab of rag which has been wrung out in raw linseed oil and wipe all over

the woodwork with the oil rag. Wipe off any excess oil with a clean rag, and then, charging up a polishing rubber with brown or orange french polish, proceed to work the polishing rubber up and down the grain of the wood. This rubber of polish plus the oiling process will amalgamate the new polish to the old undercoat.

Continue to apply the polish to the surface until the old and new polish amalgamate and the work appears to be skimmed-in, or as new work would appear to be fadded-in. Lay the work aside to harden for a few hours and then give the suite a brush coating of half and half french polish and spirit naphtha varnish. When this has hardened four hours or so, ease down any dust specks with No. 0 glasspaper. This easing down must be done with a light touch and, if there is any tendency for the glasspaper to bite too keenly or to grind down the body of polish, slightly lubricate the face of the glasspaper with raw linseed oil.

After glasspapering, dust the work and body up the wood with a rubber or two of french polish, working with a circular and figure eight path. Finish off with a new rubber charged with half french polish and half benzoin glaze. Apply this rubber in the direction of the grain and do not rub over the same path twice without allowing the previous coat to dry. Use this glazing rubber fairly freely charged, but not sloppy, the idea being to spread a thin coat or coats of glaze like a thin varnish which is applied with a rubber instead of a brush.

To repolish a walnut medicine chest the procedure would be similar to that described above. It may, however, be necessary slightly to tint the finishing polish with the smallest trace of bismark brown aniline if the black walnut appears to be devoid of tone. (249)

Finishing Oak

R. D. (Spalding) has made a bookstand in oak and asks the best way of finishing it.

REPLY.—After the cabinet work is completed and glasspapered, take a penny sponge and dip it in warm water, sponging the whole of your bookstand inside and out. This will raise the grain and leave the work very rough, and the following day you will have to re-glasspaper it with No. 1½ grade paper to make it smooth again. It will then be ready for staining, and this may be accomplished by staining the oak with strong liquid ammonia and wiping off the excessive dampness or tears of stain. Allow two days to dry and then ease down any slight roughness with No. 0 grade glasspaper. Now give the job one coat of painter's shellac knotting and, allowing this to harden, ease down with No. 0 grade glasspaper and apply a wax polish at intervals of three days until there is an egg-shell gloss. If you wish for a Jacobean shade you can omit sponging the work with water, and simply apply Johnson's wood dye No. 178. After allowing this to dry over-night, give the work a coat of the above knotting, which may be applied with a gilder's mop brush. When dry, ease down with fine glasspaper, No. 0, and wax polish as directed above. (262)

THE LIGHTEST AND THE HEAVIEST WOODS

BALSA AND QUEBRACHO

A STUDY of the lightest and heaviest known woods is extremely interesting to the woodworker. From the viewpoint of comparison in weight alone, it will surprise many to learn that balsa wood, known as the lightest wood in the world, weighs in the neighbourhood of seven and a half pounds per cubic foot, or approximately one half as heavy as cork, while the weight of quebracho, the heaviest wood in the world, is given as in the neighbourhood of seventy-eight pounds per cubic foot.

While balsa wood has long been known to scientists, the use of this unusual timber in a commercial sense is comparatively recent. It has come to be more generally known in recent years because of its suitability for model airplane construction, its extreme lightness enabling the model builder to construct planes that will actually fly and thus provide interesting sport and demonstrations of educational value.

Balsa Wood.

Balsa is known to botanists at *Ochroma lagopus*, but the name "balsa" is Spanish for "raft," and was applied to the tree and its wood because the early Spanish explorers found the natives using the tree trunks as rafts. It is a common tree along the sea shores in the West Indies and Central America. In Costa Rica, Central America, it is cultivated on plantations for commercial purposes and it is regarded as the commercial tree in Porto Rica, growing most successfully on the edge of swamps and in other inaccessible places, often with its roots in contact with salt water.

The wood of balsa is nearly white or sometimes tinted with red, showing practically no distinction between heartwood and sapwood. It possesses a silky texture, is rather coarse but straight grained, and can be easily worked with a sharp knife and glasspaper.

As might be expected, balsa makes very rapid growth, has striking foliage and magnolia-like flowers. The fruit consists of a five-celled capsule about six inches in length and about one inch in diameter. As soon as these pods are ripe the cells split open longitudinally and the seeds with their silk cotton protrudes and spreads over the whole surface, giving the appearance of a hare's foot. This characteristic is alluded to in the botanical name *lagopus*, which signifies hare's foot. The bark is used locally for the tannin it contains and both the bark and the roots are used medicinally.

The tree occasionally attains a height of from forty to fifty feet and the trunk is sometimes from four to five feet in diameter. In one year trees have been known to grow ten feet in height and four inches in diameter, and to a height of twenty feet in two years. Exporters of Costa Rican balsa claim that there is the male type, known locally as *burrillo*, and the female, known as *balsa real*, and that only the female is market-

able; the sexes appear very similar, except at flowering time. The reason for its extreme lightness can be found in connection with its loose structure and the softness of its tissue, which is easily compressible under the thumb nail. The annual rings of growth, though almost invisible to the naked eye, are evident on examination under the hand lens.

During the war thousands of mines in the North Sea were attached to floats of balsa wood and it is now used extensively for life belts. On account of its porous quality it has been found a most efficient non-conductor of heat, and so is coming into use in refrigerator plants, while a firm in San Francisco recently constructed a non-sinkable barge from balsa. It is regarded as a splendid insulating material, and is in use by manufacturers of fine furniture and radios for packing purposes in making shipments of their products. A well known yeast company has been using the wood for several years, claiming it is the only satisfactory material in which to ship the product. Tests made as to its strength indicate that balsa is about one half as strong as spruce, the tests being conducted on pieces of equal measurement, so that weight for weight balsa has twice the strength of spruce and is, in fact, weight for weight, the strongest wood known.

Quebracho.

THE HEAVIEST WOOD in the world is quebracho, found in Argentina, Bolivia, Brazil, Paraguay, and Uruguay. The trees never grow in pure stands, but are scattered through open forests composed of many species. Seldom, in fact, are more than four or five quebracho trees found on an acre. It usually attains a height of from 50 to 70 feet, and a diameter of from 2 to 4 feet.

It is neither a mountain nor a river-bottom tree, but grows best in the somewhat elevated stretches between the water courses, or in other situations with sandy soil and moderate atmospheric conditions combined with abundant soil moisture. Its growth during early life is very rapid, fence posts being obtained in ten years, but in later life its growth is very slow.

The heart of quebracho is one of the hardest, heaviest, and, in the region of its occurrence, most durable woods known. Highly tempered tools are required to work even the young green wood, and old wood is almost as hard as metal. It weighs about 78 pounds per cubic foot, and has a specific gravity of from 1.2 to 1.4, sinking of course in water.

Its lasting qualities are such that, in Argentina, ties of the wood appear to remain indefinitely in a perfect state of preservation. Logs left in the woods have been found absolutely sound after twenty-five years. The wood contains a very large amount of tannin, which acts as a preservative, and to which its extraordinary durability has been ascribed. (248)

THE QUESTION BOX

QUESTIONS only of general interest can be answered in these columns. Readers will kindly note:—(1) Detailed replies or sketches cannot under any circumstances be sent by post; but, as the Editor may require further information, a stamped addressed envelope should be enclosed. (2) Full particulars of what is required should be clearly stated, and (if possible) a rough sketch with over-all sizes enclosed. (3) Questions of purely personal interest cannot be dealt with in these columns.

NOTE.—With each Query must be sent a Coupon (see foot of page iv. of cover). All queries to be addressed: Editor, THE WOODWORKER, Montague House, Russell Square, London, W.C.1.

Wireless Cabinet

L. R. (Chesterfield) has a 1929 Cossor Melody Maker wireless set for which he wishes to construct a cabinet.

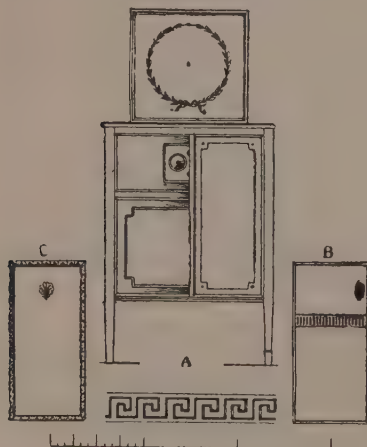
REPLY.—You do not state in your letter what is the actual size of the panel you intend to fit. We have not a set of this particular make, but if your 1929 model happens to be identical in size with the 1930 production, the panel size would be 19 in. by 7 in., and our suggestion for the cabinet is worked out to these dimensions. We note that the 10—10 volt Exide high tension batteries are grouped to cover an area of 12 in. by 14 in., and that the low tension battery is 5 in. by 5 in. by 9 in. In allowing a space for these a height of about 12 in. is apportioned to include clearance for handling. The total height of the actual cabinet, as seen, is 2 ft. 7 in., whilst with 1½ in. legs or posts the width over uprights would be a full 1 ft. 10 in. As the baseboard together with projections measures on plan about 11½ in., the back to front measurement over uprights should not be less than about 1 ft. 1½ in. which allows very little clearance when front and back panelling are included. As you wish for a plain, simple design, we have kept out all fretwork, the panel being surrounded by a ¼ in. ovolo bead, in addition to a bead surround of the adjustment on the panel itself which in this year's model is grouped in a width of 4½ ins. The lower tier masking the batteries might have a frame cut-out of plywood of 5 mm. thickness, with broken corners, which might have the panel opening here surrounded by a ½ in. bead glued and panel-pinned on. The panel itself might be formed by a piece of silk gauze, this being one of the later methods and giving a good appearance in a yellow bronze shade. We would advise enclosing the whole with a door such as the one suggested at A. This is a flush surface door with cocked bead surround upon which is mounted a broken corner panel of plywood. As an alternative the treatment might be as in B, the plain surface

being relieved by a strip of fluted detail which can be purchased ready for use from the sundriesman. Another effect on broad lines which we think should prove successful would be to mount on the flush door a mould with leaf decoration of ¼ in. or ⅜ in. section, with or without a shell or other device in centre. This would give figured grain its best opportunity and in addition the higher parts of the leaf detail might be tipped with gold. Gold for this purpose can be made from ordinary gold bronze mixed with a little seccotine let down with hot water to form a paint, which will dry hard and bright and have a longer life. The legs may be finished either with a plain taper or with toes as shown. We note the size of loud speaker to stand above on a flat surface and indicate a method of affording relief to this by means of husk detail mounted on face, but we are, of course, at a loss to know whether this part already has fretwork or shaping of any kind. A scale is included for the cabinet and doors, the strip of Greek key detail being a suggested alternative to the fluted mount at B. The top of cabinet upon which the loud speaker stands would of course be hinged at back to raise, but many cabinets are fitted with a door or movable panel at back for access to the interior fittings. (255)

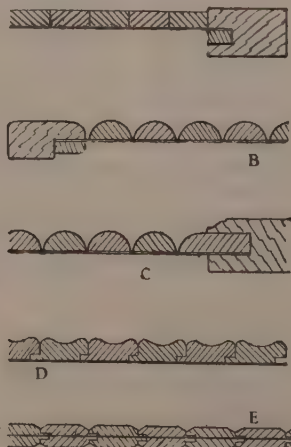
The Shutter of a Roll-top Desk

G. W. A. (W. Kensington) asks how to fit a shutter to a roll-top desk.

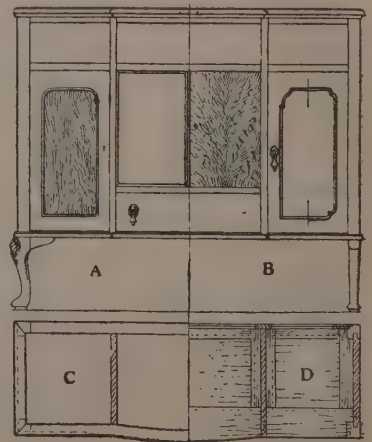
REPLY.—These shutters are made up of a stout canvas or linen, such as a medium sail cloth or stout bed ticking. On to this as a base a series of laths will be glued, these varying somewhat in section. The first three figures indicated here are the simplest to fit for your purpose. Such laths, if you are preparing them yourself, should be got out carefully to the same section throughout, but they are generally



WIRELESS CABINET.



ROLL-TOP DESK SHUTTER.



GRAMOPHONE CABINET.

procurable from the local sundriesman at moderate cost if you wish to save time and trouble. A shows a flat section lath to finish about $\frac{1}{4}$ in. by $\frac{1}{4}$ in. It is best to prepare the full number of laths required and set them out upon the canvas previous to glueing down or to cutting tongues. When mounted, the canvas should be left to project beyond the first lath, so that this can be glued and wedged into the bottom rail. In B the section of lath is D-shaped, and in fitting the slightest possible clearance, say $\frac{1}{16}$ in., should be left, to ensure extra pliability in the shutter when being opened or closed. The sections show about $\frac{1}{4}$ in. by $\frac{1}{4}$ in., the locking rail being finished by rounding the corners to agree and the canvas secured to it by a flat bead screwed on.

Another method of securing the shutter made up of D-section laths is to form the first lath of a flat about $1\frac{1}{2}$ in. by $\frac{1}{4}$ in., this flat being tongued into the locking rail to be glued and screwed, the locking rail itself being finished with a small ogee mould on the upper edge. An improved section for these laths is shown at D, these being finished $\frac{1}{4}$ in. by $\frac{1}{4}$ in., which includes an allowance of $\frac{1}{8}$ in. for tongue. This gives a strengthened result in the making up and is also a protection against the canvas being cut or unduly worn under the joints between the laths. There is also a more elaborate method of constructing the curtain or shutter, this being to wire the laths throughout its length as shown in section E. Additional flexibility is secured by tapering the tongues to give them more clearance in the grooves. Thin brass wire can be used in one length to pass through the laths at intervals of about 12 ins., the ends being secured by round-headed brass screws. The locking rail of the curtain closes down on to the table top and is fitted with a small box lock in centre to shoot into the top. Wooden handles may be fitted, shaped from pieces 6 ins. by 1 in. by $\frac{1}{2}$ in., these being gouged out hollow on the under side for lifting purposes and screwed into position. If preferred, other handles of the cup variety can also be fitted. In some cases the curtain is finished with an end rail similar to the locking rail, but thinner so that it travels within the groove easily with the curtain. This groove can be cut in the solid wood, but a simpler method is to use a $\frac{1}{4}$ in. thickness for the ends and form the groove by planting pieces on, thus making the ends here up to about one inch net thickness. Such pieces can be fret-cut and glued to shape, or fixed with small brass round-headed screws, evenly spaced. It should be remembered that the curtain must be cut exactly to a length that will enable it to travel close up to the desk sides. It will be best to lay the shutter over the desk and gauge carefully the exact length. (257)

Gramophone Cabinet

T. R. (Spennymoor) sends a sketch of a gramophone cabinet he wishes to make and asks for help with the construction (see illustration on previous page).

REPLY.—We understand that you wish your cabinet to have a width of 3 ft. 6 in. by 20 in. deep at ends, a height of 3 ft. and the centre part to hold an amplifier 17 in. by 14 in. by 10 in. For the upper well a depth of 6 in. is allowed to take turntable and tone arm in the centre compartment under a flat top hinged to raise and supported on elbow joints. The lid of $\frac{1}{4}$ in. or $\frac{3}{8}$ in. thickness had best be flush-framed up, but

may be clamped with 2 in. clamps at each end tongued on if preferred. It may be hinged with a pair of brass butts, but will be stronger and have a better appearance if a length of piano hinge is used. We suggest that the bow centre part should be kept somewhat flat in projection. This will have a more refined appearance and will tend to save extra work. The upper panels fronting the well and side recesses may be of $\frac{3}{8}$ in. thickness, saw-kerfed on the inner side to bend to shape in centre, the part being cut into the inner divisions, glued, nailed and further secured by neat quadrant section slip glued and panel-pinned on. Plywood could be used here. A top rail above this may be dovetailed to posts in addition to being halved on to the top edge of divisions and further held here with pieces of $\frac{3}{8}$ in. dowel entered home. The carcass ends may either be tenoned to legs with the grain running horizontally or, with the grain running vertically, may be housed into legs to finish flush on the outer side and be stiffened in the holding by glue-blocking or lengths of $\frac{3}{8}$ in. quadrant section fillet, glued and panel-pinned into the inner angles. The uprights themselves may be of $1\frac{1}{2}$ in. by $1\frac{1}{2}$ in. stuff net, and it will be noticed that, as an alternative to the twist legs you show, a cabriole leg 9 in. high with or without a carved shell on knee is indicated, wing pieces being tenoned into position and further secured by screwing and glue-blocking behind. Such legs are usually procurable from the nearest sundriesman or, if you wish to work a leg yourself from the stuff in use, we suggest the straighter leg shown at B, which can be worked to shape with spokeshave, rasp and glasspaper to the necessary roundness without recourse to a lathe, if this is not at hand. The cabinet will be stiffened in its construction by framing up the floor portion of the upper well as at D (one-half). A rail about 3 in. to $3\frac{1}{2}$ in. wide, increasing to the extent of the curve allowed in centre, which may have a spring of 1 in. to 2 in. as preferred, is tenoned to enter legs, ends and inner divisions, the centre part of the rail being fitted in similar manner. The inner edge will be grooved to receive tongued rails front to back, these also being grooved to receive the flush bottom and also a back rail finally tapped home from the back, the whole finishing so that the carcass back itself may bed flush upon it. This back may be of $\frac{3}{8}$ in. thickness, framed up of 2 in. stiles and rails with three plywood panels. The carcass bottom may be solid $\frac{1}{2}$ in. thickness, rebated into position and screwed or dovetailed to ends. The centre cupboard shows about 14 in. high, which allows space for a full 4 in. drawer. The cupboard doors in centre may either be surrounded with a $\frac{1}{4}$ in. bead, or this may be omitted, the door itself being suggested as all flush, which we think would provide a more pleasing contrast with the wing or outer doors and tend to emphasise the figured grain you wish to employ. Thickness of all doors should be $\frac{3}{4}$ in., the centre ones being glued up of vertical pieces for paring to the necessary curve and the outer doors framed up of $1\frac{1}{2}$ in. stiles and 2 in. rails, mortised and tenoned together, with corner pieces tongued into the angles for working the rounded corners as at A, which your own sketch indicates. Two alternative suggestions for finishing these doors are made at B. The floor of the centre cupboards can be made up of a front rail, 2 in. wide, tenoned to inner divisions which will be grooved for additional pieces to be pushed home from the back. It may also merely be framed up as above, the floor formed by a separate piece resting on the frame and nailed down, being of a size to finish flush immediately behind the curved doors to which it will form a stop. (253)

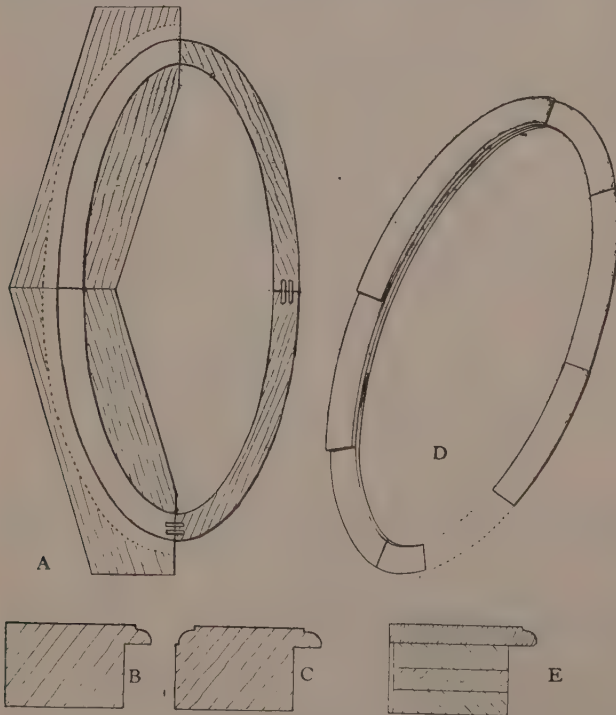
An Oval Mirror Frame

J. McS. (Rathkenny) asks how to make an oval mirror frame.

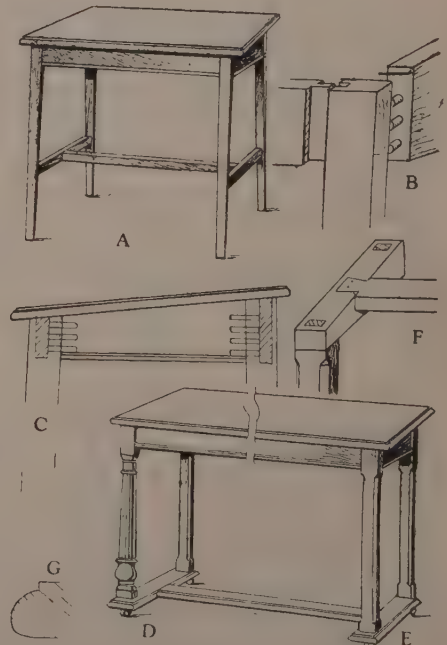
REPLY.—There are several methods, and where the joints are shown as mitred the frame is generally of fairly small size, cut out of a solid piece of wood which has been mitred up, the mitres being usually tongued with cross-cut hardwood tongues, but sometimes doweled together. In such a case the mirror opening is usually lined with strips of baywood, about $\frac{1}{4}$ in. thick, steamed to soften for bending to the shape required. When glued in, it may be firmly held in position till dry by winding with string throughout. A frame to mount a mirror 36 in. by 14 in., may be made either of solid wood in four pieces, or may be laminated up to the thickness required. A shows how boards may be jointed for the cutting of the pieces to shape so that the grain will be the longest possible in each piece.

The oval itself can be first struck by the "string" method as shown in all geometry books and the outline of one half may be stuck on the boards as shown, or a template may be made at one quarter of the frame for the marking out of each part. In striking the oval the 2 in. width of frame should also be marked and, in cutting, the extra width indicated by dotted line should be allowed for grip when cramping up. This dotted line need only be roughly cut to shape, the outer line of the frame being carefully finished later after the joint has been glued up, cramped and thoroughly set, allowing about 48 hours for the latter process. The rebate is a somewhat troublesome part of the work and it will be found simpler to overlay the face of the frame with a $\frac{1}{4}$ in. thickness of stuff cut to shape and $\frac{3}{8}$ in. wider than

the solid frame itself, the overlap thus forming the rebate. The solid oval in your case therefore would thus be $1\frac{1}{8}$ in. wide. The rebate could be started before finally assembling the sections of the oval and finished later, or at small cost this part of the work might be machined at the local mill. The parts, it will be noted, are jointed at right angles, i.e., vertically and horizontally, being put together either with hardwood cross-cut tongues or dowels. Where tongues are inserted they will give a neater result if stopped back $\frac{1}{4}$ in. from the outer edge of frame. The mirror will be wedged in the usual manner, with a back board of plywood of $\frac{1}{4}$ in. thickness which may be finished to the full outer size of frame and screwed on with round-headed brass screws. The frame may be moulded on the mirror opening edge, as at B, or the frame may be moulded on both edges as at C, sections shown. If you prefer to laminate the frame, it can be built up of sections cut with the grain as long as possible in each piece of $\frac{3}{8}$ in. thickness stuff, using baywood, Canadian or yellow pine. Each layer is glued down more or less centrally over the joint of the other pieces under it, and in this way a strong core with little liability to bend or shrink can be built up on the bed. The rebate will be formed by a facing of $\frac{1}{4}$ in. thickness and, when glued down, should make up the thickness of frame to about $1\frac{1}{8}$ in. The outer edge will be veneered to mask the laminations of the frame. Joints of oval, generally speaking, can be cut at right angles to the edge from which they start, but it is always advisable to avoid too short a grain. Where this occurs it is usual to stiffen up the part by glueing a length of black tape into the rebate and over the joint as in E, whilst D offers a section of the built-up frame with facing forming the rebate and the veneered outer edge as before described. (256)



METHOD OF BUILDING UP OVAL MIRROR FRAME.



DESIGN FOR AN ORGAN STOOL.

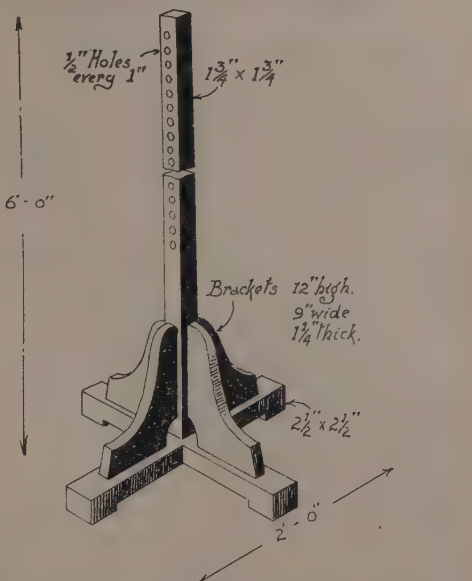
An Organ Stool

P. J. S. (Gorleston-on-Sea) asks for assistance in the design of an organ stool.

REPLY.—We offer three different suggestions. A would finish about 2 ft. long on seat with a back to front width of $12\frac{1}{2}$ in. The seat itself is $1\frac{1}{2}$ in. higher at back than at front, but in some cases the pitch allowed is 1 in. only. The legs for a firm piece of work should not be less than $1\frac{1}{2}$ in. by $1\frac{1}{2}$ in. and would taper to 1 in. net at ground. The top front rail shows 2 in. wide and the corresponding back rail would be $3\frac{1}{2}$ in. wide, whilst the end rails slope from back to front to agree, all rails being of $1\frac{1}{2}$ in. net or $1\frac{3}{8}$ in. net thickness as preferred. A $\frac{1}{4}$ in. bead is worked along the bottom edges, front and ends as a finish. The front and back rails will be tenoned to legs whilst the end rails can be either tenoned or doweled as shown in the sketch at B. The underframing rails can be of $\frac{7}{8}$ in. by $1\frac{1}{2}$ in. stuff, tenoned to legs and with the strut rail either tenoned or dovetailed to the end rails. C shows the slope of the seat from back to front, with a sectional note of rails and dowels.

A somewhat more elaborate and pleasing design would be obtained on the lines of D, the same slope being allowed to the seat but finished with 2 in. by 2 in. legs at front with turned columns, which may have the shaft either plain or reeded in the manner shown. The bottom of column terminates with a tenon, entering right through the base strut and wedged. The back legs may be of similar columns with the necessary allowance in length, or finished square or with corners chamfered from 2 in. by $1\frac{1}{2}$ in. stuff net to be tenoned and wedged as before.

If preferred, the legs might be chamfered as at E. The base framing can be finished from 3 in. by $\frac{7}{8}$ in. lengths to be moulded to the section given at G, mortised for tenons on legs right through and also mortised for centre rail to intersect.



DETAIL OF VERTICAL POST.

If you require a duet size for the stool it would finish 2 ft. 9 in. long. If, however, only a small stool is required, a very simple way of making this up with a $\frac{1}{2}$ in. on $\frac{1}{4}$ in. top would be to batten it under with wedge-shaped pieces of hardwood, as at F, these finishing about $1\frac{1}{2}$ in. high at front increasing to 3 in. at back, and mortised for a stout tenon on leg to enter right through and be wedged. A stretcher rail is also shown as dovetailed in between the battens and these would be screwed firmly to the underside of top, together with a similar underframing to that at D and E. A set of rubber-tyred castors might be fitted. The height for stool is 1 ft. $10\frac{1}{2}$ in. at front and 2 ft. at back, which should be convenient for a key board 2 ft. 9 in. high in the clear. A pad seat can be fitted loose if the top is framed up of 2 in. by 1 in. stuff mortised and tenoned together, the pad itself being made up on a separate frame to fit easily into the rebated opening. In some cases a loose "skate" cushion, about 1 in. thick only, is preferred for use on the wooden seat, the corners of cushion being made up with stout self-coloured cords or tapes for tying to the stool legs. (254)

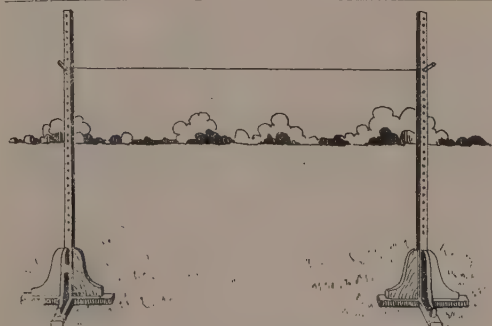
Jumping Hurdles

A. C. (Leicester) would like a suggestion for a pair of school jumping hurdles, light to handle but strong.

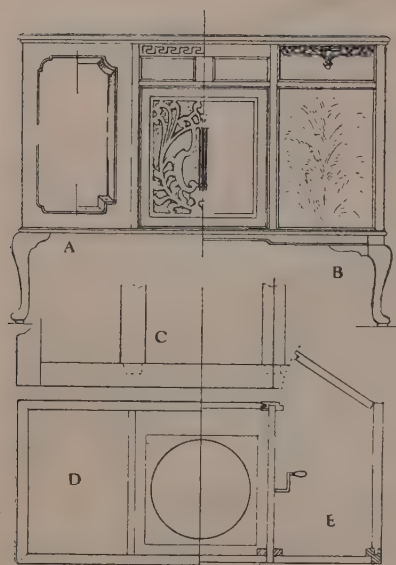
REPLY.—The jumping hurdles illustrated may be made of red deal or yellow pine, and when completed a coat of yellow shellac varnish may be applied to keep them clean. The vertical post is about 6 ft. (but this height may be varied to meet individual requirements) and is of $1\frac{1}{2}$ ins. square section material. From a height of about 2 ft. 6 in. a series of $\frac{3}{8}$ in. diameter holes are drilled at a distance of 1 in. apart to receive a wood or metal pin over which a cord and weights are suspended, or a thin lathe may be used, provided it is not fixed, as this would be liable to trip the jumper. The post is fitted to the feet by means of an ordinary mortise and tenon joint; the tenon, which is $1\frac{1}{2}$ in. by $1\frac{1}{2}$ in., being subsequently sawn down about half its length, and a hardwood wedge glued and inserted from underneath. The feet are made from $2\frac{1}{2}$ in. square material, 2 ft. long, and shaped as shown. These pieces are half-lap jointed together and mortised to receive the square tenon on the post.

Four brackets are now required. These should be cut from a plank about $1\frac{1}{2}$ in. thick with the grain running diagonally across the bracket, and shaped as shown to receive conveniently stout screws to the post and feet.

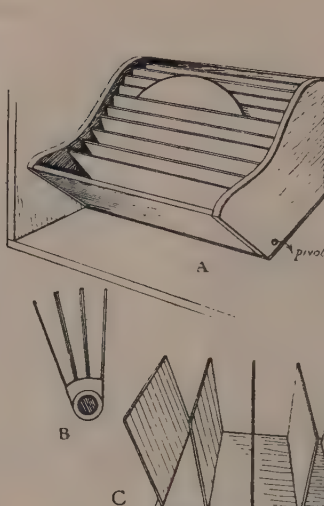
(270)



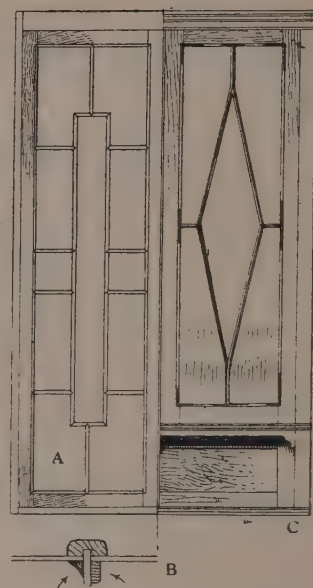
SCHOOL JUMPING HURDLES.



GRAMOPHONE CABINET (SEE NEXT PAGE).



METHOD OF CLASSIFYING RECORDS.



DOORS FOR BUILT-IN DRESSER.

Classifying Records

G. H. (West Bromwich) wishes to fit a gramophone record cabinet with hinged holders to permit of the easy removal and classification of records.

REPLY.—The section sketch included with your letter shows a type of record holder not now in general use and one probably sufficiently old to have been entirely superseded by the enclosed cabinet. If you wish to make something on the lines shown at A we think you could employ manilla paper of stout quality for the envelopes by doubling sheets to size required and connecting up the sides with wedge-shaped pieces of buckram, much in the manner of a purse, pasting and stitching the pieces together. Such pockets could be made to hold ten records with loose manilla slips between, connected by means of a buckram flap, itself stitched to form a pipe (B), through which a length of $\frac{3}{8}$ in. brass tube would pass as a pivot. This should be of a length to pass right through the shaped wood sides of the holder and be capped. Seccotine let down to flow freely with hot water might be substituted for the paste, but for permanent wear machine stitching would be desirable.

To avoid the work involved in making these pockets we would suggest that one of the "concertina" type of index holders might be adapted to your purpose, secured within a wooden case with front to fall and in so opening out extend the series of pockets, making the records easy of access. It would then be a simple matter to label such pockets for classification. These envelopes should be obtainable from any firms that specialise in commercial indexing.

There is also on the market a vertical desk file consisting of wooden leaves attached to a wooden base board and which are removable if desired. This arrangement, on the lines of C, would prove serviceable for holding a selection of records to be played in various packets of ten or so. A special gramophone record cabinet can also be obtained supplied with elastic fittings. Each record is placed on a folder which can be numbered and indexed in a small

loose leaf book, the record being numbered to correspond. When extracting a record the folder is pulled forward an inch or two, the record removed and the folder left projecting to mark the place for instantaneous replacement. The cabinet can be obtained in oak, walnut or mahogany, and is fitted with a glazed door which lifts and slides back over the records. (271)

Fitting Doors to Dresser

G. N. B. (Bristol) wishes to fit a pair of glass doors to a built-in dresser, and asks for suggestions for fixing and for a suitable design for the doors.

REPLY.—We have some difficulty in offering you exact details since your sketch does not show how the dresser finishes at the ceiling height, nor does it indicate whether sides other than the wall recess exist for the support of the various shelves. We therefore offer alternative suggestions for treatment and must leave you to make any small detail adjustment that the existing dresser may require in the working. If no wooden ends to the shelved portion above the drawers exist, your best plan would be to construct a frame to fit the wall space, and form a facing to the existing upper part to which the pair of doors can be hinged. If a cornice projection mould exists at the present time, this can be removed and a rail about 3 in. wide by $\frac{7}{8}$ in. net thickness fitted, doweled or tongued into end uprights $\frac{3}{4}$ in. to $1\frac{1}{2}$ in. thick by $\frac{3}{4}$ in., and a corresponding base board which would bed upon the existing table top and have the end uprights cut into it. The whole would then be screwed or nailed to plugs entered into the wall previously or to existing shelves. The cornice mould which, in our sketch is shown as a 3 in. section, can be mounted on the upper rail and so butt up to each wall of recess as before. For the door the suggestion at A takes into account the height given, i.e., 5 ft. 2 in., and is indicated as framed up of 2 in. by 1 in. stiles and rails, mortised and tenoned together and further braced by rails mitred into a narrow centre panel. This barred

framing may be made up of $\frac{3}{4}$ in. by $\frac{1}{2}$ in. flat, with a tongue entered at back as in section B, so that the 28-oz. glass to be used can be either beaded or put-tied in from the back. The pieces will be V-cut into the bar section and also into the mould worked round the door, which may be a flat ovolo in shape. The mould, however, may be omitted.

A door of this height had best have four 2 in. brass butt hinges for hanging, otherwise in course of extended wear there would be a tendency for the door to tear away owing to its weight, as will sometimes happen. One drawback we think you will find in fitting a pair of full-length doors is that, whenever these have to be opened it will be necessary to clear everything that happens to be on the existing table top in the way of the swing. For that reason C suggests finishing the doors at the height of the first shelf above the table top, so that the lower recess is left clear for use. To make up the necessary projection of the shelf a moulded slip, about $1\frac{1}{2}$ in. net width and agreeing in thickness with the shelf, can be fitted as a facing, together with an apron piece shaped as shown immediately under, using a slip $1\frac{1}{2}$ in. by $\frac{3}{4}$ in. for the purpose. In this case a pilaster, $1\frac{1}{4}$ in. wide, is shown as an upright for hinging the door, which will be framed up as before of 2 in. by 1 in. stiles and rails, the door panelling formed by lengths of astragal mould mitred up diamond fashion and the moulded surround of the opening being worked to one half the astragal section so that all may intersect neatly when making up the panel. This would make a very neat door on simple lines, but the astragal may be replaced with $\frac{3}{4}$ in. by $\frac{1}{2}$ in. flat as before if desired. It is not quite usual, but a length of mirror could be fitted to the lower recess of C, if this portion is to be panelled up on wall, this idea being serviceable in cases where the room itself happens to be badly lighted.

(251)

Gramophone Cabinet Construction

W. A. M. (Liverpool) asks for advice on the dimensions and construction of a gramophone cabinet he is designing. (See illustration on previous page).

REPLY.—From the rough sketch included with your letter, we think that so far as proportion is concerned the dimensions would be suitable, but they are somewhat on the heavy side for the carcase, which might have the clearance under made higher. The legs could then be allowed a height of about 14 in. instead of 11 in. as at present. As you wish the usual end doors to be replaced by fixed panels we presume that you intend to utilise the interior for records by entry at the back of carcase, access to the key for winding the motor being obtained from above by raising the top. This top would require to be $\frac{3}{4}$ in. thick to the size you give, and in one piece this would be somewhat heavy. We therefore offer the suggestion that it should be made up in three parts, the central lid or top being made to shut in the turntable well only. If made in one piece the top had best be framed up of stiles and rails $2\frac{1}{2}$ in. to 3 in. wide, mortised and tenoned together, with panels grooved in to finish flush as in sketch at C. If made in three parts to open independently, the tops may each be clamped with $1\frac{1}{2}$ in. clamps only tongued on. The fixed panels might be improved in appearance if framed up in any one of the four broken corner methods shown at A, either with a sunk panel or with a bevelled raised panel, the surrounding mould being a $\frac{1}{4}$ in. ovolo. In

this way a full height panel on the lines of your own rough sketch should look well, but as an alternative treatment we suggest that the panel may be formed of a single piece with a figured facing halved from the centre for a flush effect, to be finished with a $\frac{3}{4}$ in. bead surround. Above this the small panel would be flush with an applied fret as shown.

As you will require a well about 6 in. deep for turntable and tone arm, the division of panels here (B) is made at that depth in line with the corresponding rail across centre part, the width of which is allowed about 18 in. The panel facing the well above might be relieved by a strip of Greek key or other suitable detail applied on face, and the space immediately below panelled out with $\frac{3}{4}$ in. bead butting up to an applied slip about 2 in. wide in centre. The inner divisions of carcase may be $\frac{3}{4}$ in. thick solid to agree with the ends, and will be mortised right through the carcase bottom in addition to being held by the framing of turntable bottom, grooved in, screwed and glue-blocked under. The top of carcase immediately under table top will be finished by mitred frame about $1\frac{1}{2}$ in. wide by $\frac{3}{4}$ in. thick.

In fixing the position for the key-wind inside recess on right-hand side, it will be remembered that a clearance of about 7 in. will be necessary and this would allow for a store of 12 in. records to stand vertically on the cabinet floor. It would be best for this purpose to make a separate four-sided box or frame of stuff $\frac{3}{4}$ in. by 12 in. wide, fitted with either three or two divisions grooved in top and bottom with a 3 in. D-shaped cut taken out of the edge to facilitate hand hold when removing a record. It is not a bad idea to insert a piece of $\frac{1}{2}$ in. stuff in the bottom of each division to be bevelled away to a knife edge, and thus form a tilting bottom which will prevent the records jolting forward with sudden impact. The part plan at E indicates the back as fitted with a door.

It is possible to screw and glue-block the cabriole legs into position behind the wing pieces, but a much firmer method would be to form a stool by fitting rails to an existing square on the leg with wing pieces tenoned to leg and screwed to the rails, which would themselves be dovetailed into the leg squares. Alternatively, of course, suitable legs can be obtained with $1\frac{1}{2}$ in. uprights which would extend to the full height of the cabinet. If these are used, the front wing panels can be cut into them as at E.

(252)

Waxing a Floor

J. B. H. (Thorney) asks how to make a wax polish for oak floors.

REPLY.—Shred English beeswax on a tin household shredder. Lay the shredded wax in an open-mouthed jar and pour on sufficient genuine American turpentine to cover it nicely. Place the pot glue-kettle fashion in a large dish of warm water and stir the compound until it becomes more or less dissolved. Do not use unnecessary heat, because this will have a tendency to de-nature the wax. When you have obtained the required consistency by adding more wax or reducing the paste with turpentine, add a little colouring matter, as for instance a little vandyke brown, which can be procured ready ground in turpentine, or a little venetian red ground in turpentine. Brown would be used to colour the wax compound for dark oak or walnut and the red would be added for mahogany. Polish a new floor at intervals of a week and, when the appearance is satisfactory, repeat the wax polishing about once a month.

(282)

FOLDING CEILING CLOTHES AIRER

THE folding ceiling clothes airer sketched at Fig. 1 will be especially useful to those living in a small house or flat with a small scullery, because it may be folded to occupy little space when not in use. It is made with a centre rod framed to a round centre piece, and eight airing rods are hinged to the latter in such a way that they will fold flat against the centre rod when not in use. A hook is fitted to the end of the centre rod by means of which the airer may be suspended from a screw-eye in the ceiling, or where the ceiling is fairly high a small pulley may be fitted in place of the screw eye.

THE CENTRE ROD (see Fig. 2) should be 2 ft. 3 in. long by 1 in. diameter; the centre piece (Fig. 3), 7 in. diameter by 1 in. thick, and in fixing the two together the rod is shouldered down to $\frac{3}{4}$ in. diameter, as shown at Fig. 4, and glued and wedged to the centre piece.

THE EIGHT AIRING RODS are 2 ft. long by $\frac{3}{4}$ in.

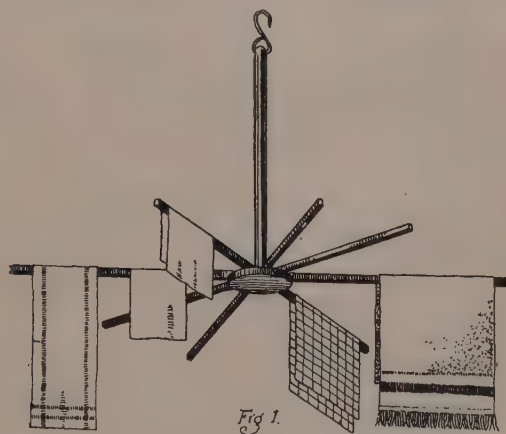
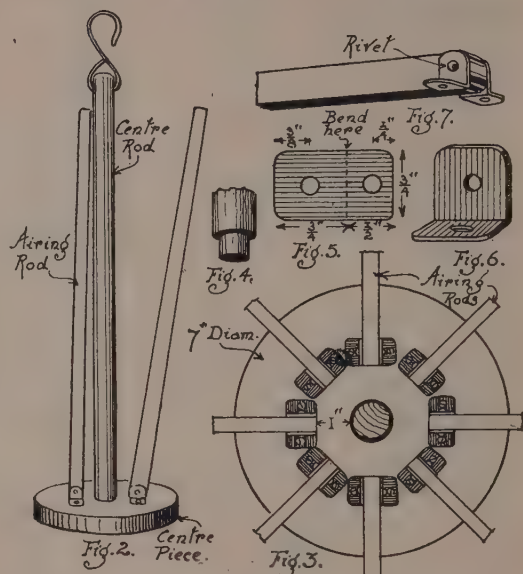


FIG. 1.—FOLDING CEILING CLOTHES AIRER.

FOR JULY.—We begin in next month's WOODWORKER a new short series of joinery articles on the making and the application of joints for outdoor structures such as cycle sheds, tool houses, garages, etc. These will be specially written and illustrated by the author of our handbook on "Woodwork Joints," and should prove of great help to readers who engage in outdoor woodwork during the summer months. Designs in readiness are for a nest of five tables for indoor or garden use, a bungalow sideboard, a music cabinet, a tea table, etc.

Remember that we are now into summer. To avoid disappointment in regular delivery, readers are urged to have a definite order for THE WOODWORKER placed with their newsagent. Back numbers can usually be had (price 7d. post free) on application to the publishers: Evans Bros., Ltd., Montague House, Russell Square, London, W.C.1.

FOR DESIGN of a lych gate, see the May WOODWORKER, page 146.



FIGS. 2 TO 7.—CONSTRUCTIVE DETAILS.

wide at the back tapering to $\frac{1}{4}$ in. at the front by $\frac{3}{8}$ in. thick, and they are each hinged to the centre piece with a pair of small metal plates. These plates may be easily formed from $\frac{3}{4}$ in. strip metal, preferably brass, cut in $1\frac{1}{2}$ in. lengths, punched with two holes as shown at Fig. 5, and bent up square as shown at Fig. 6. A pair of the plates are fixed to the end of each rod by means of a small rivet (see Fig. 7), and the rod is fitted to the centre piece by fixing the plates with a couple of screws, the centre piece being divided up into eight equal parts to mark the positions of the rods. (277)

FROM A READER.—"I beg to tender sincere thanks for the help and sketches in regard to my enquiries. The sketches have helped me considerably, as I find difficulty in getting the required books in South Africa. In return for your kindness I will try, and hope to get twenty new subscribers to THE WOODWORKER, from which, having been a subscriber myself for years, I have derived much benefit and help."—R. P. S.

IF YOU ARE PLANNING a holiday in France, Belgium or Switzerland, take the precaution of rubbing-up your knowledge of the language—putting a French polish on it, as it were. For this purpose you cannot do better than read that very interesting journal *La France*, published in simple language for the benefit of English readers (weekly, 2d., all newsagents).

Boy's two-seater pedal car—a luxurious toy; see the May WOODWORKER, page 141.

THE WOODWORKER

VOLUME XXXIV.

JULY, 1930.

NO. 440.

MUSIC STOOL OF THE CABINET TYPE WITH FALL FRONT AND SLIDING TRAYS

THE cabinet type of piano stool here shown still remains popular. This one has been designed to give as far as possible a light and graceful appearance, a common fault with this type of article being its heavy and clumsy build. Mahogany would be the best timber to use, but oak, birch or similar hardwoods may be effectively used instead.

front rail (C) is dovetailed to the front legs and assembled with the back. When set the carcass is turned upside down and the bottom is glued and screwed into rebates already prepared, being notched round the legs and carried over the back.

THE SLIDING TRAYS are of $\frac{1}{4}$ in. thick plywood running in grooved bearers (B) which are screwed

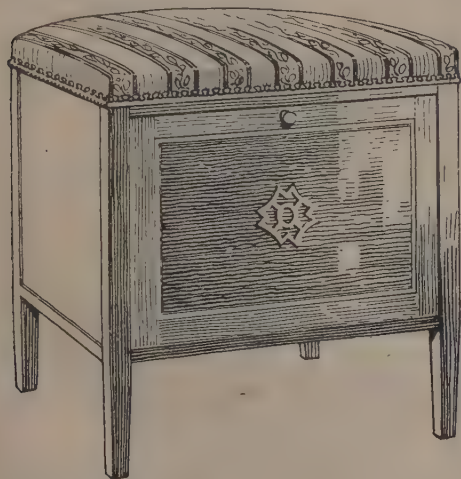


FIG. 1.—CABINET PIANO STOOL.

WIDTH, 20 INS.; DEPTH, 15 INS.; HEIGHT, 21 INS., OR AS REQUIRED.

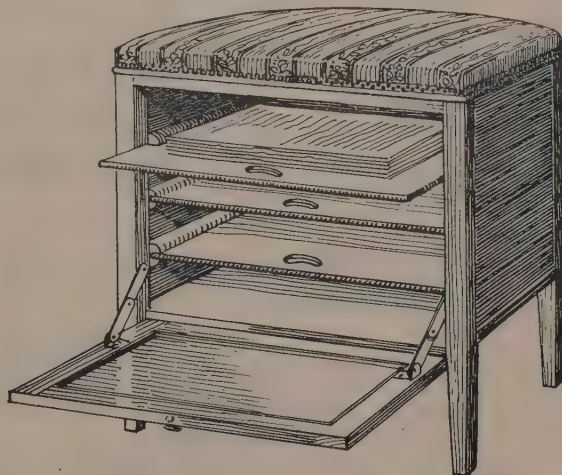


FIG. 2.—VIEW SHOWING FRONT OPEN.

DIMENSIONS are 1 ft. 8 ins. long, 1 ft. 3 ins. wide and 1 ft. 9 ins. high. The height will be determined by the height of the piano keyboard. Keyboards vary in height from 2 ft. 4 ins. to 2 ft. 6 $\frac{1}{2}$ ins. Thus the over all height of seats varies from 1 ft. 7 ins. to 1 ft. 10 ins., remembering that the upholstered seat will sag to the extent of about an inch. The legs (A) should consequently be cut to a length to suit the piano which the stool is intended for.

CONSTRUCTION.— $1\frac{1}{4}$ in. squares should be used for the legs, finishing $1\frac{3}{8}$ ins. square and tapered to 1 in. square at bottom. The back (J) and the sides (H) are $\frac{5}{8}$ in. thick, the grain running horizontally, and are tongued to the legs (Fig. 5). The wood should be mild and dry. The sides are rebated to receive the bottom (K) before glueing the sides and legs together. The top

to the sides. A ledge (L) is screwed to the back edge of each tray, being cut shorter to clear the bearers. The fall frame (D and E) is mortised and tenoned (Fig. 6), the ovolo moulding being mitred at the corners. The panel, which may be of $\frac{1}{4}$ in. plywood, is beaded in, the panel being stained beforehand. The applied fret is optional, but relieves the severity.

The fall is hinged to the bottom (K) and is supported by a pair of small quadrants or by chains when down and secured with a ball catch at the top when closed. The knob must be neat and should not project more than necessary.

Figs. 4 and 5 show how the upholstery is tacked to a separate frame (F and G) which may be dowelled or tenoned together. The finished upholstered seat is fixed to the underpart by two side fillets screwed to the frame and sides,

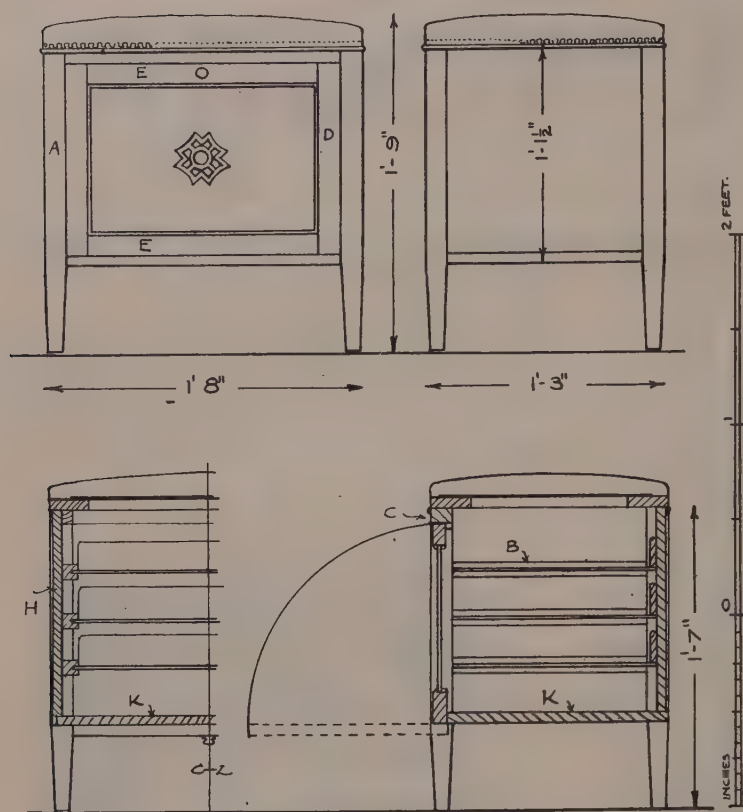


FIG. 2.—ELEVATION AND SECTIONAL VIEW, WITH SCALE.

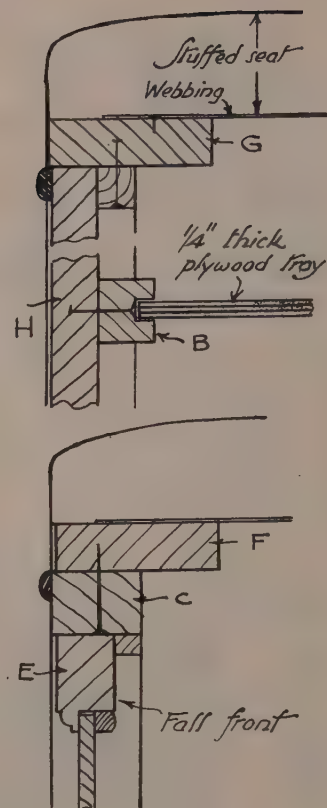


FIG. 4.—ENLARGED SECTIONS.

two ways, and also by a screw up through rail.

The finish of the piano will determine that of the stool. Mahogany should be stained and full

polished a rich plum colour. Oak and birch would be effective in a nut brown colour and polished with a rubbed antique effect.

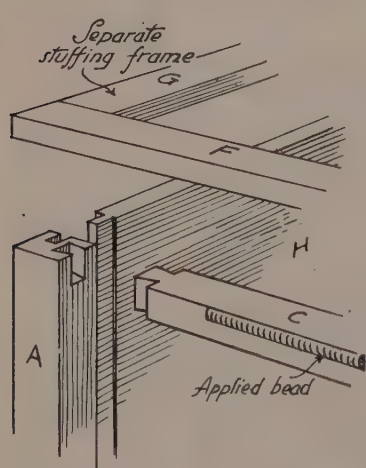


FIG. 5.—GENERAL CONSTRUCTION.

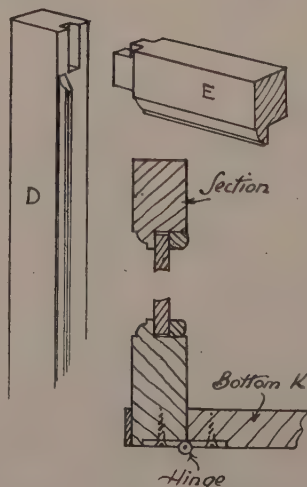


FIG. 6.—FALL JOINT AND SECTION.

CUTTING LIST:—

		Long. ft. ins.	Wide. ins.	Thick. ins.
A	4 Legs	1 7	1 1/2	1 1/2
B	6 Bearers	1 0 1/2	1	1
C	1 Top rail	1 6 1/2	1 1/2	1
D	2 Fall stiles	1 0 1/2	1 1/2	2 1/2
E	1 Fall rail	1 4 1/2	1 1/2	2 1/2
	1 Ditto	1 4 1/2	2 1/2	2 1/2
F	2 Frames	1 8	2 1/2	2 1/2
G	2 Ditto	1 0	2 1/2	2 1/2
H	2 Sides	1 1	13 1/2	2 1/2
J	1 Back	1 6	12 1/2	2 1/2
K	1 Bottom	1 7 1/2	14	2 1/2
L	3 Ledges	1 4 1/2	2	2 1/2
M	3 Trays	1 5 1/2	12 1/2	1 1/2
N	1 Fall panel	1 2 1/2	9 1/2	1 1/2

All above sizes are net. Allow for cutting and paring. (204)

CHIPS FROM THE CHISEL

TRADITION AND ANARCHY

THERE is nowadays such an insistent demand for "modern" design in furniture and decoration, that it might well be worth pausing for a few minutes to consider in what this modernity consists. There are two schools of thought in modern design: the one would have anarchy, that is, a complete breaking with the past and everything designed anew, reflecting what we are told are the main characteristics of the world to-day. So far this movement is largely experimental, expressed in its extreme form for the most part in various books explanatory of the ideas of the school, and in a modified form in some modern furniture and architecture. What, apparently, it would express is a mechanised age of science and factory, where everything is severely utilitarian, and decoration for its own sake is eschewed; where hygiene is a god, and the human soul, with its longings and aspirations, has a very small place on the map indeed. For it is human to love pleasant things and kindly things, and the barren world which this new anarchy would thrust upon us lacks human kindness.

* * *

The other is the school of tradition, which prefers development to come gradually, based upon the things we know; which would keep its past, built up by countless generations of men, and would uphold it challengingly against the mechanical powers that threaten war upon it. It is man against mechanism; man preferring to have his home as a place of comfort and escape from a too-pressing reality rather than as a reflection of something vast and impersonal in the world outside. Development and modification are going on all the time, but by a gentler process, keeping what is best in the past and only shedding those things which were for their own age and time only and which the new age finds cramping and unsympathetic.

* * *

It is especially interesting in this connection to note how a firm like Wedgwood, strong in tradition, is responding to the present call for modernity. A few weeks ago was celebrated the bicentenary of Josiah Wedgwood, the founder of this great pottery industry, and descended from four generations of master potters. Josiah Wedgwood was, before all things, a thorough craftsman. He was himself skilled in every branch of the potter's work, and insisted that every detail should be thoroughly and honestly carried out. There were to be no faulty shapes covered by ornament. Lids must fit perfectly, spouts must pour and the finest quality of work must go into everything; this at a time when there had been a certain casualness in the English craft about such things. Among the various exhibits that have been shown in London recently to celebrate the bicentenary was a day book of the firm containing a record of notes which show what careful observation was kept on the making of each piece in those early days,

what experiments were carried out with every particular noted, till gradually a sound body of knowledge was built up for the perfection and development of the industry.

* * *

Then, after efficiency, he gave himself up to design. He lived in an age of classical revival, and he had a passion for symmetry, regularity and balance which he expressed in the delicate designs based on classic models to this day always associated with the name of Wedgwood. But beautiful though his designs were they are alien in spirit from modern taste, with its constant reaching out towards freedom. Ours is too unruly an age to care to fetter itself within the pseudo-classic lines of the 18th Century revival. Modern severity and restraint is rather in the nature of a reaction from over-decoration than from a conscious looking back, or it is the anarchical outbreak which will sweep away everything, classical and romantic, and try to find new patterns, new forms of expression.

* * *

In the Wedgwood ware to-day, therefore, there is apparent a development towards freer modern forms both in line and decoration. It is significant that only this year Sir Charles Holmes, formerly Director of the National Gallery and well-known as an art critic, has accepted the position of artistic consultant to the firm of Wedgwood, it being contemplated that by this appointment the firm will be kept in closer touch with the trend of artistic development and of public taste. Another significant fact is the growing tendency in the Etruria works to re-introduce hand labour at various stages of the manufacture, notably in decoration; restoring the personal, individual touch which is lost sight of in machine and mass production methods.

* * *

It is in decoration that this striving after greater freedom, with all the human and artistic gain it entails, is especially apparent. The finer Wedgwood wares have always been painted by hand throughout in the traditional patterns, but now girls are trained to paint the decoration on even the less expensive wares, in this case working on a printed transfer which they fill in by hand. It has been found that they can learn to do this work really quickly, with the result that more and more girls are being trained and a leaven of freedom in the matter of decoration is permeating the whole output of the works. Side by side with this there is a relaxation in the restraint of the traditional forms, while keeping that high technical standard which has been handed down from one generation to another from the days of Josiah Wedgwood. The interesting result is that to-day, however modern in design a Wedgwood piece may be, it keeps some subtle grace, some mark of true tradition, which links it for ever to a great past, from which it can no more escape than it can escape modern tendencies—nor would one wish it to do so.

(308)

HOME CARPENTRY

A DOUBLE-DECKER FOOD SAFE

THE double decker food safe, of which we give a perspective sketch at Fig. 1, is particularly suitable for the small kitchen or kitchenette found in houses built under modern housing schemes. It is a type of fitting that takes up a limited amount of space and provides accommodation for both cooked and uncooked meats. The drawer which is fitted in the bottom will comfortably take tinned goods.

In construction it has been kept as simple as possible, and it introduces to the home worker the method known as glued and dowelled jointing. Each end of the safe consists of a frame the stiles of which measure 5 ft. 7 in. by $1\frac{1}{2}$ in. by $\frac{7}{8}$ in. thick. These stiles are held together by a top shaped ogee cross rail (A) which is 12 in. by 4 in. by $\frac{7}{8}$ in., a centre rail (C), 12 in. by 3 in. by $\frac{7}{8}$ in., and a bottom rail (B), 12 in. by 10 in. by $\frac{7}{8}$ in. These three rails are dowelled to the uprights as at A1 (Fig. 3); and, after being glued up and allowed to dry, they are planed up on both sides with the smoothing plane and glasspapered to a neat finish.

The three carcass shelves ($\frac{7}{8}$ in. thick) are then prepared and their corners cut to fit around the stiles of the end frames. They are then screwed and nailed in position. The top carcass shelf is fastened under the shaped top rail, but the intermediate and the lower shelf is fixed on to the top of the cross rails (C and B).

The shaped front bottom rail (D) is blind dowelled, having three pegs in each end to engage the framed sides. This method of construction will not be apparent on the ends of the work. The two $\frac{3}{4}$ in. shelves in the cupboard portions are supported on strips of wood $\frac{3}{4}$ in. by $\frac{3}{4}$ in. screwed to the inside of the ends. The back of the safe is of 5 mm. birch or alder plywood made up of two separate sheets, the joint coming to the edge of the centre shelf immediately above rail (C), so as to allow it to be nailed along the joint line. The top sheet of plywood is sawn to a 3 ft. radius, and this gives the top shaping shown in the perspective sketch.

THE DOOR FRAMES have their corners dowelled together (see Fig. 3) and the wood for stiles and the cross rails measures $2\frac{1}{2}$ in. wide by $\frac{7}{8}$ in. thick. The perforated zinc or wire gauze which is fitted into both the door frames and the end frames is supported and fixed by nailing and glueing around the inner edges of the frames strips of beading which measure approximately $\frac{1}{2}$ in. by $\frac{1}{4}$ in. as at F (Fig. 3). The two doors are hung with two pairs of $2\frac{1}{2}$ in. brass butt hinges, and either a snap latch or a cupboard turn would be requisitioned for fastening.

Strips of beading similar to F may be fixed inside the ends of the cupboard frames to act as slamming stiles (see Fig. 3, H) to make the job as fly proof as possible. Alternative end



FIG. 1.—FOOD SAFE: 5 FT.
6 IN. BY 2 FT.

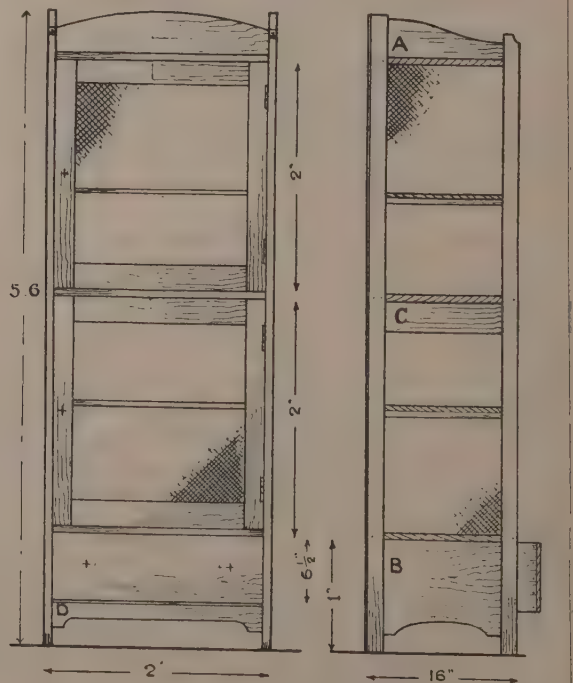


FIG. 2.—FRONT ELEVATION AND SECTION.

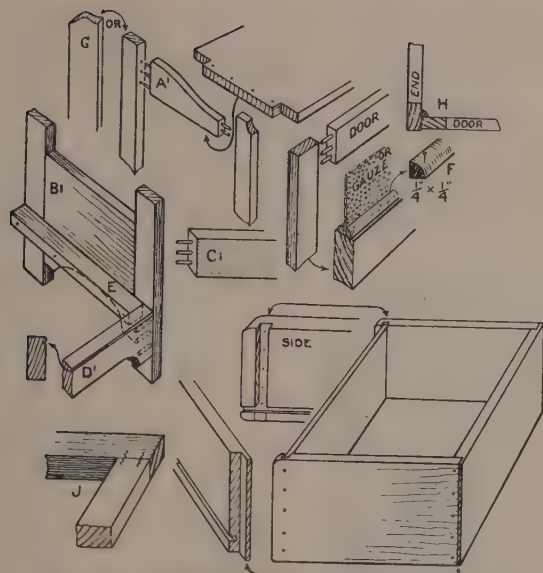


FIG. 3.—VARIOUS DETAILS OF CONSTRUCTION.

shapings are given at G and A1 (Fig. 3) for the upper end of the back stiles.

THE DRAWER FRONT is $\frac{7}{8}$ in. in thickness, the ends rebated to receive the $\frac{3}{8}$ in. drawer sides which, in turn, are housed to receive the $\frac{1}{2}$ in. back. The drawer front and the ends are grooved to take a 5 mm. plywood drawer bottom, and the several pieces are glued and sprigged up to form the drawer, thus eliminating dovetailing which for an article of this type is an unnecessary procedure. The drawer may be fitted with knobs or with sunk handles, the latter being less apt to catch in the apron or dress.

The runners (E, Fig. 3) on which the drawer slides are simply glued and nailed into position, and the end of each runner is cut flush with the back of the end frames to allow the plywood back to be nailed to them.

The whole of the woodwork may be of red deal and when assembled it should be given a coat of Cannon's concentrated size—say, $2\frac{1}{2}$ ozs. of size to one quart of warm water. When this size has dried overnight, the raised grain of the wood should be removed by lightly glasspapering (No. 1 grade), after which it may be finished by

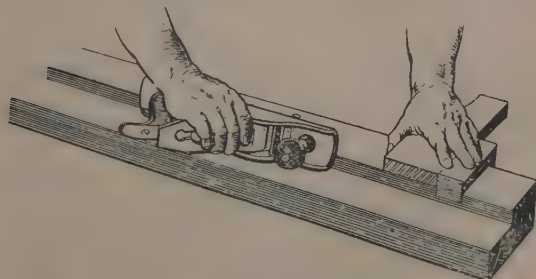


FIG. 4.—PLANING ENDS OF CROSS RAILS ON SHOOTING BOARD PREVIOUS TO DOWELLING.

giving two or more brush coats of a spirit varnish which can be made by dissolving 7 ozs. of orange shellac in one pint of methylated spirits. The completed safe may be fixed to the wall with one wall plug and one screw.

For those workers whose time is limited and who require a cheap job, the whole of the joints can be fixed together with corrugated divergent saw edged fasteners as at J, Fig. 3. Three fasteners would be driven into the back of the frames and two into the front sides. The fasteners are somewhat unsightly on the face of the work, but for a rough job for pantry or larder use they answer the purpose and save a great amount of time in the general construction.

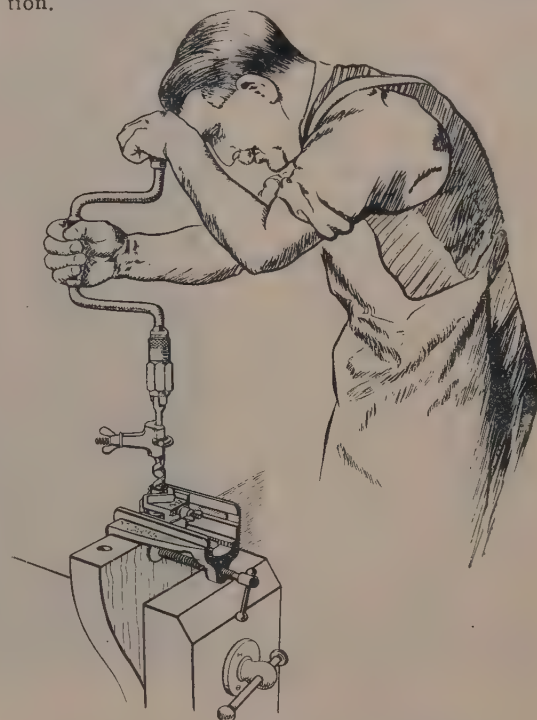
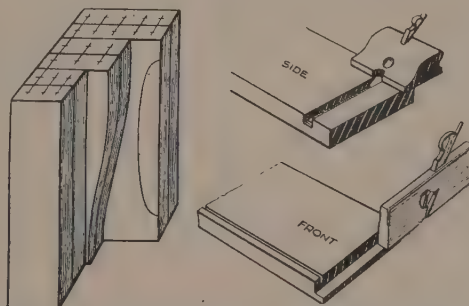


FIG. 5.—THE USE OF A METAL DOWELLING JIG WHEN BORING WITH THE BRACE AND TWIST BIT.

FIG. 6.—CROSS RAILS SET OUT FOR MARKING.
FIG. 7 (SIDE).—LEVELLING BOTTOM OF TRENCH;
(FRONT)—TRIMMING THE REBATE.

A few hints may now be offered to the inexperienced worker, who is advised to buy his red deal ready planed and thickened from the local saw mill. Place the four long stiles one behind the other and proceed with the aid of try square and pencil to mark out the positions of the cross rails. Cut the wood for the cross rails about $\frac{1}{8}$ in. longer than the required length and shoot their ends square on the shooting board. Fig. 4 illustrates the manipulation of the metal plane and how to hold the wood. After squaring the ends of the six cross rails they may be set out for dowelling as at Fig. 6. The long stiles are then set out to match for dowels and the worker proceeds to bore the $\frac{3}{8}$ in. dowel holes with a twist bit.

WHEN BORING DOWEL HOLES with a brace and twist bit it is usually necessary to use a try square or an upright piece of wood to insure the holes being bored perpendicular to the edge and face of the rail. Even with this temporary assistance some amount of practice and skill are necessary. To overcome any possibility of crooked boring and its results there is on the market a special metal dowelling jig which we illustrate in Fig. 5. This gadget is for the purpose of enabling the user (even if it is his very first attempt) to bore dowel holes in the edge, the end, or the surface of the work with ease and accuracy. It will take any thickness of timber up to three ins. and may also be used as a guide to bore out the core of a mortise hole. The steel guide of the dowelling jig is automatically set to guide the bit correctly when the jig is clamped on to the work to be bored.

If twist drill bits similar to those used for boring metal are used, there will be no danger of boring out of line, even in cross grained woods or knots, and the use of drill bits is recommended for quick and accurate work. The ordinary twist or worm bit of the Russell Jennings's pattern gives excellent results if care be taken to see that they fit closely in the guide tubes. To allow for slight variations in the different makes of bits the guides are made tooth of an inch larger than the sizes given.

The illustration (Fig. 5) given shows the general position of the worker using a metal brace and twist bit when the jig is fixed upon the ogee shaped top rail of the food safe. The small piece of metal having a wing nut which is fixed on to the boring bit acts as a depth gauge, and thus ensures that the holes both in the cross rails and the stiles are all of the same depth. The jig is made by the well known Stanley Tool Co., and may be obtained from any ironmonger.

After boring, the holes are glued, the dowels driven into position and then sawn off to $1\frac{1}{2}$ in. long. In due course the end frames are glued and cramped together, and later the carcass is put together by fixing in the shelves and plywood back as previously described.

The drawer front is neatly fitted into the opening, after which it is withdrawn and then rebated at each end. The bulk of the material can be cut out of these rebates with a tenon saw, after which the rebate will have to be trimmed up to a smooth finish by careful chiselling or, better still, by using a finely set rebate plane as at Fig. 7 (below). The drawer back is fitted in a similar manner as regards length, but it must be kept one inch narrower than the front so as to allow for the plywood drawer bottom and the quarter inch clearance at the top edge.

The drawer sides are squared up at their ends on the shooting board and tightly fitted widthways into the opening, after which they are housed to receive the back. The housings should be at least $\frac{3}{8}$ in. from the ends and they may be formed by first making two saw cuts across the wood to the required depth, after which the core is roughly pared away with a suitably-sized chisel and the bottom of the trench or housing is then bevelled up with an old woman's tooth plane (or router) which is used as sketched at Fig. 7 (above).

After the drawer is glued up and nailed the nails should be slightly punched below the surface of the wood, otherwise they are apt to snip and blunt the blade of the plane when easing the drawer sides to fit. (296)

POLLARD OAK.—In its best form, brown (or pollard) oak may be considered as one of the most beautiful that is grown, both in regard to its colour and at times to its varied formation of growth. Common as species of oak are in various parts of the world, no other country produces this wood; it appears to be indigenous to Great Britain, almost to England alone, for we have heard of but one specimen having been found in Scotland. It is not plentiful, however, and its production is limited to the southern and midland counties, being more plentiful in the latter than in the former.

A good deal of speculation has arisen in regard to its origin. It is a vexed question, but is ascribed to a fungus growth which in its action produces this colouration of the wood. Trees

that have been pollarded have the finer wood, for in addition to the attractive colour which many possess they have the distorted growth that follows the loss of their limbs; they develop, moreover, especially at the base of the butt, those fine burrs which often contain the most attractive wood. The colouration is also found in other and well-grown trees that have been untouched by the axe, when a straight grained timber, usually with less colour, is found.

The timber is valuable and much sought after for furniture construction, but it is an expensive wood, both in its purchase and the amount of skilled labour that is required, and in consequence little but high-class work is produced. In America it has always been greatly and deservedly esteemed.

LIGHT 3-FOOT BEDROOM SUITE

I.—THE WARDROBE

An interesting Cabinetwork task for the Summer months. The other two pieces of Suite are the Dressing Chest and Mirror (ready for August) and the Tallboy Dressing Cabinet and Chest (ready for September).

FOR the small house or for the spare bedroom this suite is ideal. Although all three pieces are small in size, the utmost use is made of their space. Several uncommon features, too, are incorporated. The chest, for instance, has a useful cupboard space in addition to the drawer accommodation, and is fitted with sliding trays on which clothes and a trousers press can be kept. The dressing table has two top drawers running right through to the front in place of the usual jewel drawers. This increase in size makes them suitable for collars, ties, and so on. The general style is modern, such features as the receding top mouldings, the restrained use of decorative details, and the absence of shapes being typical of the trend of the latest ideas. Whilst in no way lacking in character, the design is sufficiently indeterminate to be suitable for any of the hardwoods.

We are taking the wardrobe this month. At 3 ft. wide and with a height of 6 ft. 1 in. it affords ample accommodation. The front is all wood, but those who wish to fit a mirror can fix one to the inside of the door. This is made up with a separate frame which is screwed in position and does not affect the construction. For convenience in handling, the whole job is made up in two parts. There is no need for the top to be fixed down—unless it is made of very light stuff, when two screws at the back would be desirable to counteract any tendency for it to fall forwards when the door is opened, especially if a plate glass mirror is to be fitted.

Fig. 3 gives the main sizes, and Fig. 4 the general carcase construction. It is immaterial whether the top or bottom carcase is made first. To make the latter first has the slight advantage that the other can be stood on it when finished. As shown in Fig. 4 four legs are built into it. These are joined to the sides with dowelled

joints, and the top is lap-dovetailed into the whole. It is impossible to dovetail the bottom because of the legs. A thoroughly strong job is made, however, by working rebates in the sides, screwing the bottom in these, and arranging tenons at front and back to hold the legs.

Prepare the legs first, squaring them, and cutting them off to the exact length. The grain of the sides is vertical, necessitating their being jointed up to make the required width. Take special care when trimming them to make the front and back edges square. They should actually be fitted to the legs to make a close butt joint. Put a distinguishing mark on each so that all can be replaced in the same positions. To mark out the dowels each leg should be cramped temporarily against the edge to which it is to be joined, and pencil marks squared across both. Four dowels in each is enough. A gauge set to half the thickness of the sides makes cross marks at right angles with the pencil marks and completes the dowel marks.

Having completed the dowelling work the rebates at the bottom edges of the sides, and glue up each independently. When shaping up the top and bottom remember to cut them short by the thickness of the laps at both ends. Mark out and

chop the dovetails in the usual way, remembering to allow for the cut-away parts where the legs occur. To ensure accuracy it is a good plan to make the dovetail lap equal to the lap of the bottom rebate, as this enables both top and bottom to be made the same length. The bottom is cut away at the corners similarly to the top except that it has tenons instead of dovetails. This is shown in Fig. 5. When assembling fix the bottom first, reverse the job, and knock in the top. A plain square fillet moulding is mitred round the top as in Fig. 4.

Guides are necessary for the drawer. These



FIG. 1.—WARDROBE OF LIGHT OAK SUITE.
WIDTH, 3 FEET. HEIGHT, 6 FT. 1 IN.

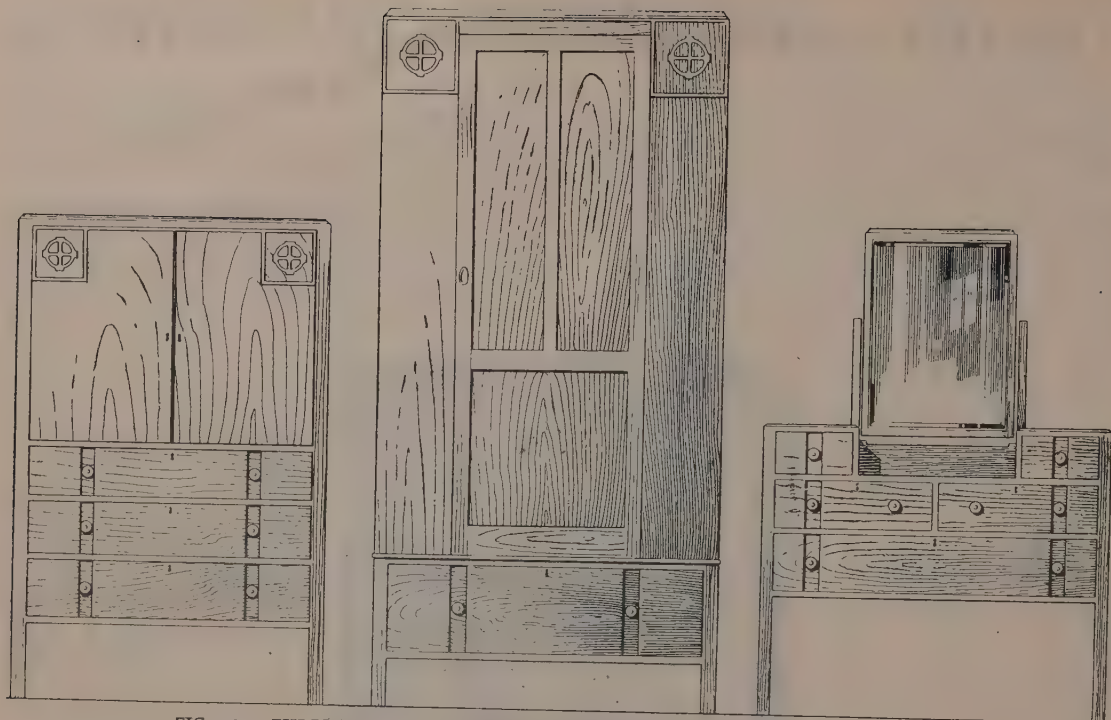


FIG. 2.—THREE-PIECE 3-FT. BEDROOM SUITE IN OAK OR MAHOGANY.

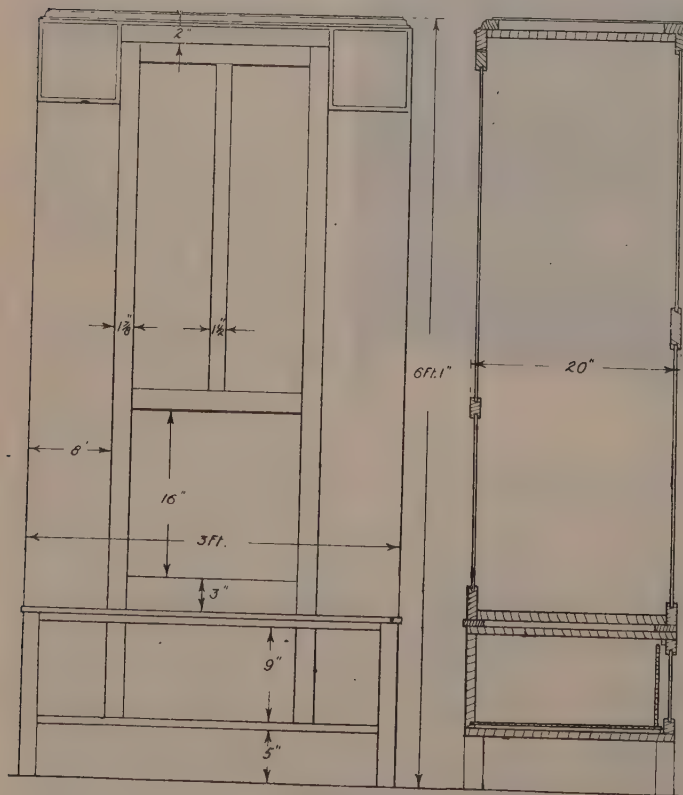


FIG. 3.—FRONT ELEVATION AND SECTION OF WARDROBE.

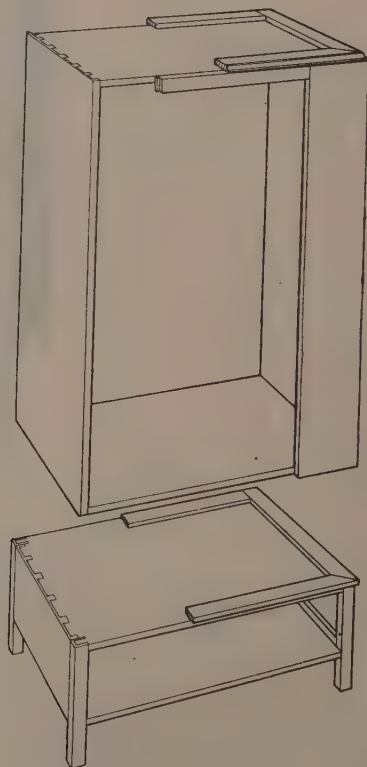
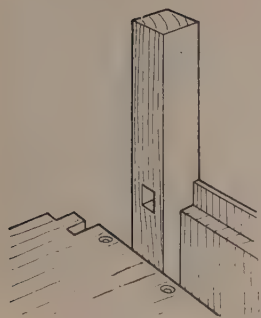
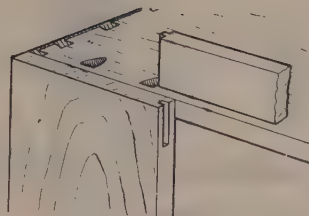
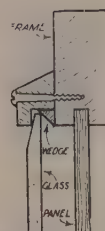


FIG. 4.—THE TWO CARCASSES.


 FIG. 5. — REVERSED
VIEW OF LEG AND
BOTTOM.

 FIG. 6. —DETAIL OF
PILASTER.

 FIG. 7. —
SECTION
THROUGH
DOOR.

can be arranged as in Fig. 7. A frame consisting of a rebated moulding is mitred together. This is laid face downwards on the bench and the mirror slipped in. Wedges are glued round at intervals and the whole allowed to set. It is then laid on the back of the door and screwed on. Take special care in handling the frame as there is not much strength in it. When screwed to the door, of course, it is perfectly rigid.

CUTTING LIST:—

line up with the legs. The back is a plain panelled frame fitting inside at the back. To make it quite dust proof small square fillets can be tacked round inside as in the section in Fig. 3. Screws can be driven through top and bottom to hold the back. There is no outstanding feature in the drawer construction, except that shallow channels 2 ins. wide by $\frac{3}{8}$ in. deep are cut across the front to line up with the upper door stiles.

The upper carcase is lap-dovetailed together. It differs from that below in that it is narrower by the thickness of the pilasters flanking the door ($\frac{1}{2}$ in. or 1 in.). The top and bottom are narrower still, as the back is screwed to them. The ends, of course, are rebated and thus extend right to the back. If the same lap is allowed on the dovetail as on those in the bottom carcase, the top and bottom can be the same length as those below. There is an advantage in their doing so because it saves any fine calculations.

Having worked the rebates in the ends the whole can be glued up. Take care to test for squareness. Fig. 6 shows how the pilasters are secured at top and bottom, pocket screws being used. Do not drive in the screws until after the glue has set, however, as, being slightly askew, they may tend to pull the work out of truth. Dowels are used to strengthen the joint between the ends and the pilasters. To provide a rigid fixing for the short frieze rail, stub-tenons fitting into grooves in the pilasters are provided as given in Fig. 6.

A top moulding is mitred round front and sides, and a filling piece is butted at the back (Fig. 4). To prevent dust from settling a dust board should be pinned down over the moulding. Figs. 1 and 2 show how a plain half-round moulding is applied at the top. It runs across the frieze and forms square panels in the pilasters. Frets are glued in these. A plain framed-up four panel back is provided.

There is no need to enter into the construction of the door as this is simply tenoned together with grooved-in panels. If a mirror is desired it

	Long. ft. ins.	Wide. ft. ins.	Thick. ins.	
Bottom Carcase—				
4 legs	1 4	0 1 1/2	sq. (fin.)	
2 sides	0 11	1 5		
1 top	3 0	1 8 1/2		
1 bottom	3 0	1 8 1/2		
2 back rails	3 0	0 1 1/2		
2 back stiles	0 9 1/2	0 1 1/2		
1 back panel	2 6 1/2	0 7	ply.	
1 front	2 9	0 9 1/2		
2 sides	1 6 1/2	0 9 1/2		
1 back	2 9	0 9		
1 bottom	2 8 1/2	1 6 1/2	ply.	
Top Carcase—				
2 ends	4 8 1/2	1 7 1/2		
1 top	3 0	1 6 1/2		
1 bottom	3 0	1 6 1/2		
2 pilasters	4 8 1/2	0 8 1/2		
1 frieze	1 9	0 2 1/2		
2 back stiles	4 8 1/2	0 2 1/2		
2 back rails	3 0	0 2 1/2		
1 back rail	3 0	0 4 1/2		
2 back stiles	2 4	0 2 1/2		
4 back panels	2 1	1 3 1/2	ply.	
2 door stiles	4 8 1/2	0 2		
1 door stile	2 10	0 1 1/2		
2 door rails	1 8	0 2		
1 door rail	1 8	0 3 1/2		
2 door panels	2 8 1/2	0 8 1/2		
1 door panel	1 5	1 5 1/2		
1 dust board	3 0	1 8	ply.	

Mouldings are not included. Shelves can be added as desired.

The dressing table and millinery cabinet will be dealt with in the August and September numbers respectively. (304)

FOR THE AUGUST WOODWORKER we have ready the dressing table of a new suite, and the second of our series of articles on outdoor woodwork joints—dealing with simple jointing for a light garage. Among designs ready are a bungalow sideboard, a nest of five tables, secretaire for oak living room suite, and several outdoor items. Please do not fail to place an order with your newsagent for the August and September numbers.

A USEFUL GARDEN TEA TABLE

ALTHOUGH this table will be found especially suitable for serving tea in the garden during the next few months, it will be none the less useful when summer is over for afternoon tea in the drawing-room, or supper by the fire-side. The table is made with four legs framed with two solid ends and a top and bottom to form a cabinet, which is enclosed with doors at each side. The doors are hinged at the bottom, and when open are held horizontally by light chains, forming roomy shelves at convenient height. The great advantage of a table with an enclosed cabinet of this kind for serving tea out-of-doors is that eatables may be placed in the cabinet before and after a meal, away from flies and dust, and even when being used indoors the cabinet allows the food and crockery to be packed away tidily.

The table may be made in any of the hardwoods, the following being required. Four legs (A), 2 ft. 3 in. long by 1½ in. square; two ends (B), 1 ft. 1 in. long by 11½ in. wide by ¾ in. thick;

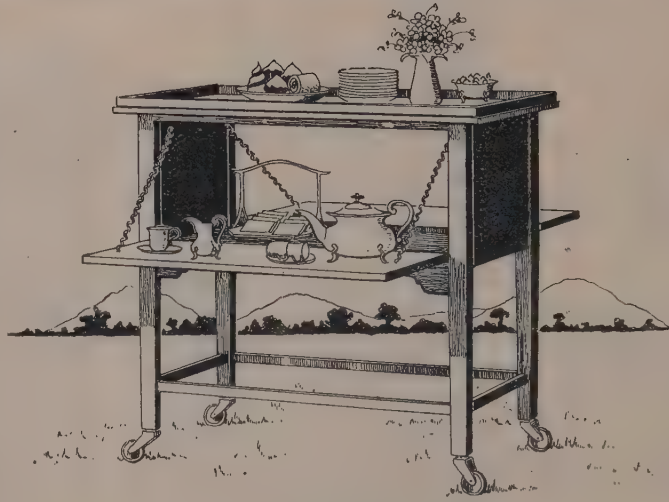


FIG. 1.—GARDEN TEA TABLE.

two bottom rails (C), 1 ft. 1 in. long by 1 in. wide by 1½ in. thick; two top rails (D), 2 ft. 2 in. long by 1½ in. wide by ¾ in. thick; two middle rails (E), 2 ft. 2 in. long by 2 in. wide by ¾ in. thick; two bottom rails (F), 2 ft. 2 in. long by 1 in. wide by ½ in. thick; bottom (G), 2 ft. 3 in. long by 1 ft. 2 in. wide by ½ in. thick; two doors (H), 2 ft. long by 10 in. wide by ¾ in. thick; four cleats (I), 10 in. long by 1½ in. wide by ¾ in. thick; two bearers (J.), 1 ft. long by ¾ in. square; top (K), 2 ft. 6 in. long by 1 ft. 5 in. wide by ½ in. thick; two edging pieces (L), 2 ft. 6 in. long, and two pieces (M), 1 ft. 5 in. long by ¾ in. wide by ½ in. thick.

In making the table the dimensions shown at Figs. 2 and 3 should be observed. The legs are first taken in pairs and framed with the ends and bottom rails, the ends being rebated ½ in. square at the inner bottom edge and tenoned into the legs as shown at Fig. 4. In cross framing, the middle and bottom rails are tenoned into the legs, and the bottom is fitted over the legs and into the rebates in the ends to which they are

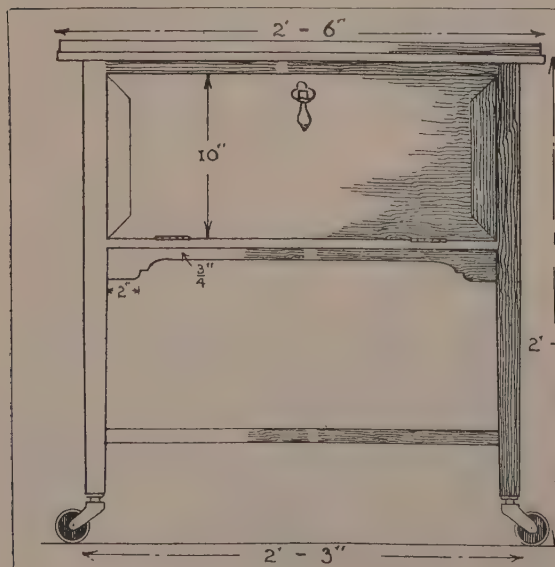


FIG. 2.—FRONT ELEVATION.

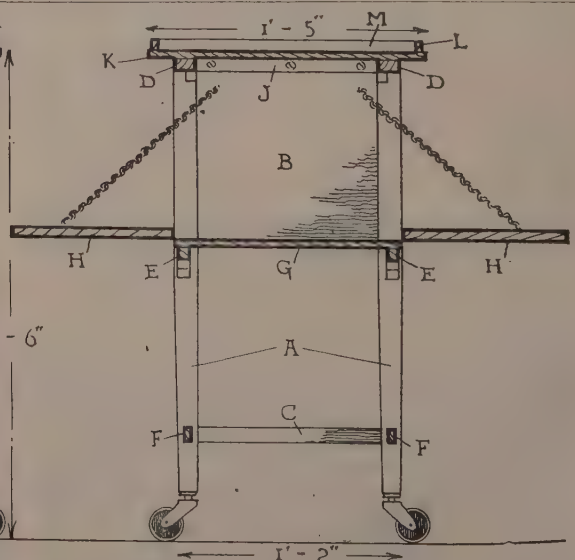


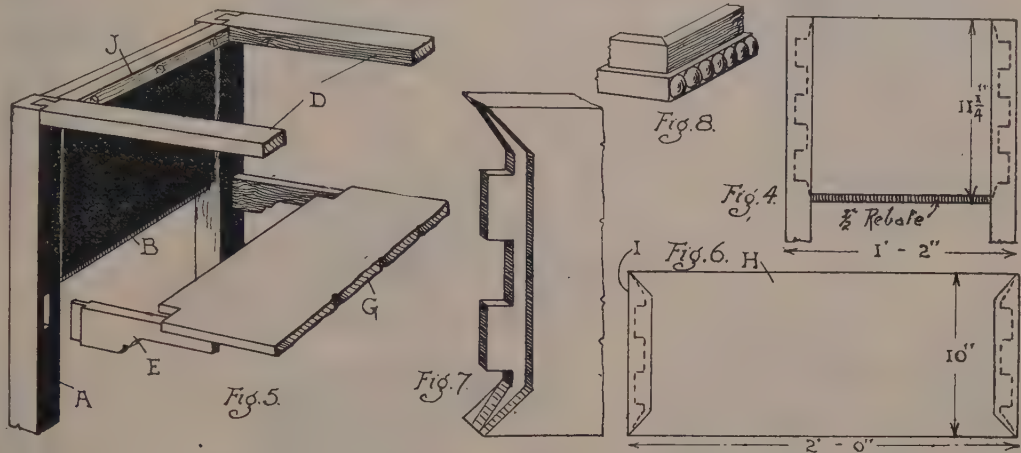
FIG. 3.—SIDE ELEVATION.

screwed or nailed. The top rails are dovetailed into the top ends of the legs, and the bearers are fitted as shown at Fig. 5. The middle rails (E) should be shaped as shown at Fig. 2, and the legs could be tapered slightly below these rails.

The doors are strengthened by framing the cleats at the ends, as shown at Figs. 6 and 7. Hinges 2 in. wide are used to hang the doors, and chains are arranged as shown at Figs. 1 and 3. Small stops should be fitted under the top rails, and ball-catches should be used for fastening.

The edging pieces are mitred around the top, being glued and pinned from under, while the top is screwed through the top rails and bearers. Plywood could be used for the top and bottom, in which case the edges should be finished with half-round beading as shown at Fig. 8, while those who care to do so could fit a sheet of glass over the top.

Four rubber tyre swivel castors, which may be obtained quite reasonably in various sizes, should be fitted to the ends of the legs. (273)



FIGS. 4 TO 8.—GARDEN TEA TABLE: CONSTRUCTIONAL DETAILS.

ERECTING A POLE PIGEON COTE

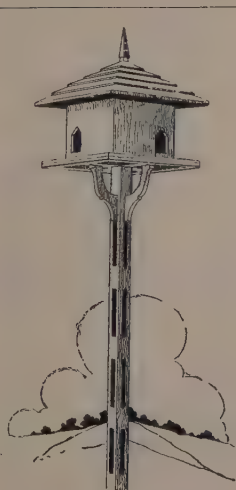


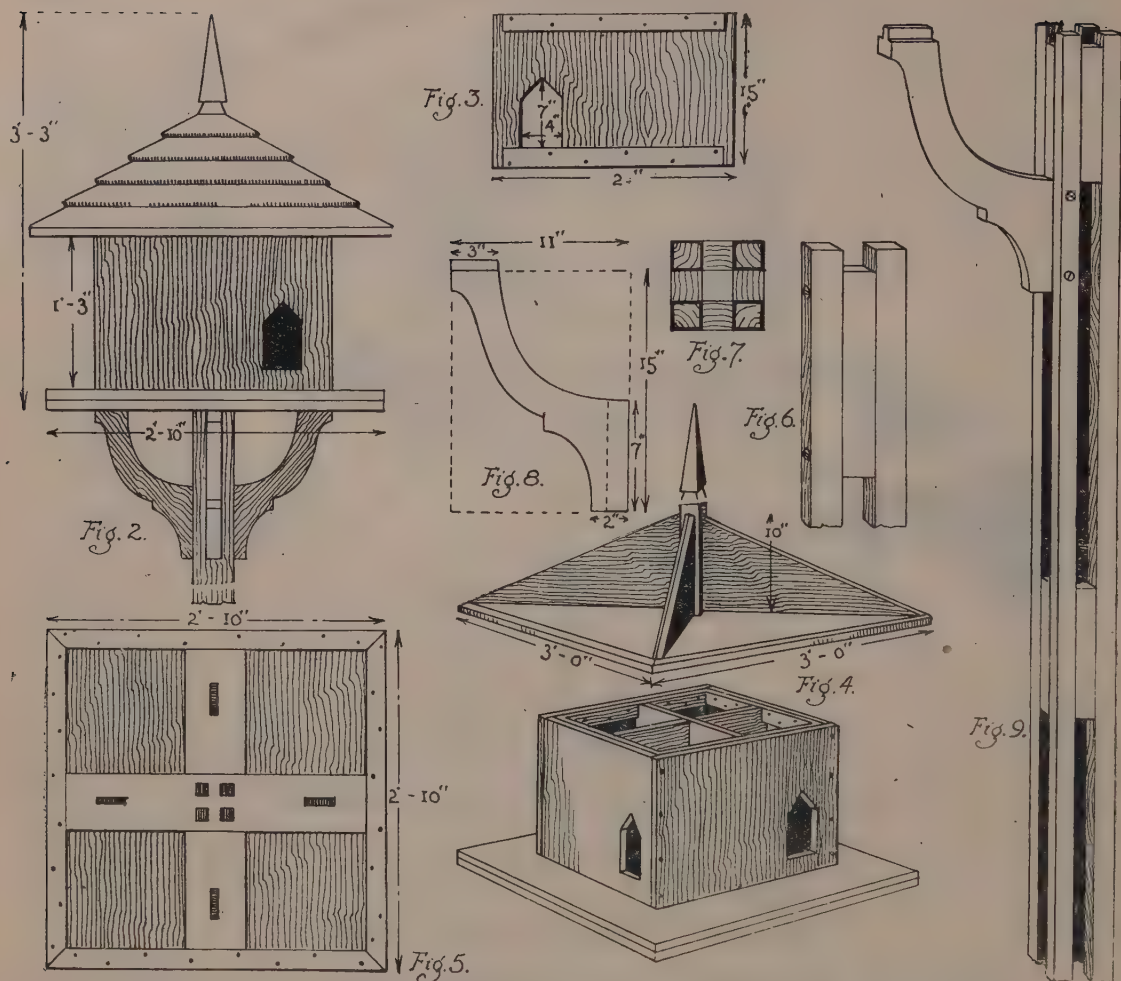
FIG. 1.—DESIGN FOR A POLE PIGEON COTE.

A PIGEON cote of the kind sketched at Fig. 1 is unsuitable for housing valuable birds, but it is one of the most attractive ornaments which may be provided for the garden. Of small proportions, it is simple and inexpensive to construct, and will give a pleasant and old-world touch to the country or suburban garden.

THE COTE is made for four pairs of birds. The wood chiefly used is $\frac{3}{4}$ in. or 1 in. deal, and the principal dimensions are shown at Fig. 2. Two of

the sides are made to the dimensions given at Fig. 3, and the other two are $1\frac{1}{4}$ in. or 2 in. narrower according to the thickness of the wood used. Battens are nailed at the top and bottom edges of the sides, and holes are cut as shown. The four sides are nailed together, the four compartments being formed by fitting and nailing divisions between them as at Fig. 4. The bottom (Fig. 5) is made up to the required size, the boards forming it being strengthened and held together with battens nailed around the edges, while cross-battens, about 5 in. wide, are fitted in the middle. On completion the bottom is nailed to the bottom edges of the sides.

THE ROOF is made up to 3 ft. square, and the roof finial is 1 ft. 9 in. high by $1\frac{1}{4}$ in. square, nailed in the centre (see Fig. 4). Four triangular shaped supports are fitted diagonally between the finial and the corners of the roof to support the covering boards, which may be weather boards of fairly narrow section, or ordinary boards covered with canvas or a patent roofing material. It should be noted that the roof should be nailed to the top edges of the sides before the



FIGS. 2 TO 9.—POLE PIGEON COTE: ELEVATIONS, PLAN AND DETAILS OF CONSTRUCTION.

covering boards are fixed.

THE POLE on which the cote is fixed should be at least 10 ft. long by from 3 in. to 4 in. square. Those who experience any difficulty in obtaining a solid wood pole may easily make a built-up one. For this purpose four strips of wood, 10 ft. long by 1 1/4 in. square are required. They are first fixed together in pairs, blocks 8 in. long by 1 1/4 in. square being screwed between them as at Fig. 6, after which the two pairs are screwed together with other blocks to form a complete

pole of the section given at Fig. 7. Shaped supports cut from 1 1/4 in. stuff to the pattern at Fig. 8 should be fitted between the pole and the bottom of the cote. If a built-up pole is used the supports may be screwed between its members (Fig. 9), and both the pole and supports are tenoned into the cross-battens on the bottom of the cote.

The work should be painted, stained and varnished, or treated with a staining and preserving solution on completion, and the pole firmly bedded in the ground. (307)

"WOODWORK JOINTS"—one of the most useful handbooks ever written—has been completely revised and brought up to date. The great majority of its four hundred diagrams have been replaced by new illustrations. Indeed, no handbook of the kind includes such a variety of illustrations of joints. The text has been carefully revised, minor or unimportant details being omitted and new directions added. The chap-

ters cover glued joints, halved joints, bridle joints, tongued and grooved joints, mortise and tenon joints, dowelled joints, scarf joints, hinged joints, shutting joints, dovetail joints, dovetail grooving, mitred joints, joints for curved work, miscellaneous joints and puzzle joints. A full index is added. Price 3/6 net. Evans Bros., Ltd., Montague House, Russell Square, London, W.C.1.

THE SUMMER CHAIR

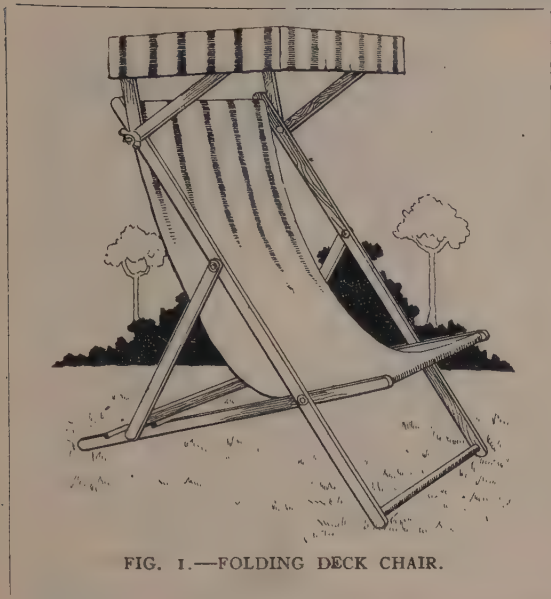


FIG. 1.—FOLDING DECK CHAIR.

DECK chairs of the pattern sketched at Fig. 1 are especially suitable for English gardens.

Our variable climate makes it needful to provide furniture which may be easily moved and stored away in inclement weather, and this chair being light and folding may be easily and quickly packed away to occupy little space.

AN ELEVATION of the complete framework is shown at Fig. 2, from which it will be seen that there are back and bottom frames (A) and (B), which are held and adjusted by the frame (C), the bottom rail of which works in cutnotches in the sides of the bottom frame (B). In addition two frames (D) and (E) are required to support the canopy. The frames are all made with $\frac{1}{4}$ in. clearance between them. The main frames are fixed together with rivets, iron washers being placed between the frames, and the canopy is fixed and adjusted with bolts and wing-nuts.

THE FRAME (A) is made with two sides 4 ft. long by $1\frac{1}{4}$ in. wide; top rail, 1 ft. 9 in. long by 2 in. wide by $\frac{7}{8}$ in. thick, and bottom rail 1 ft. 9 in. long by 1 in. diameter. The frame (B) is made with two sides, 3 ft. $5\frac{1}{2}$ in. long by $1\frac{1}{4}$ in. wide; top rail, 1 ft. 7 in. long by 2 in. wide by $\frac{7}{8}$ in. thick, and bottom rail 1 ft. 7 in. long by 1 in.

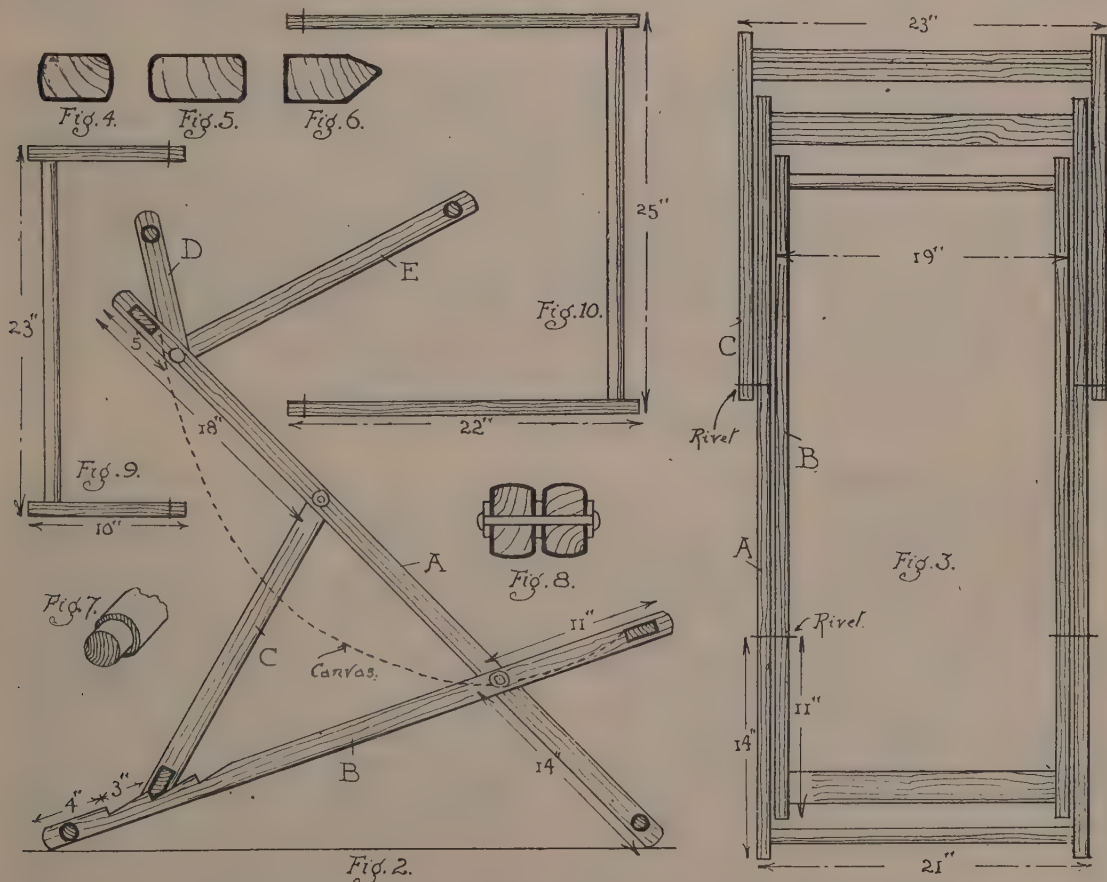


FIG. 2.—ELEVATION. FIG. 3.—PLAN. FIGS. 4 TO 10.—SECTIONS AND DETAILS.

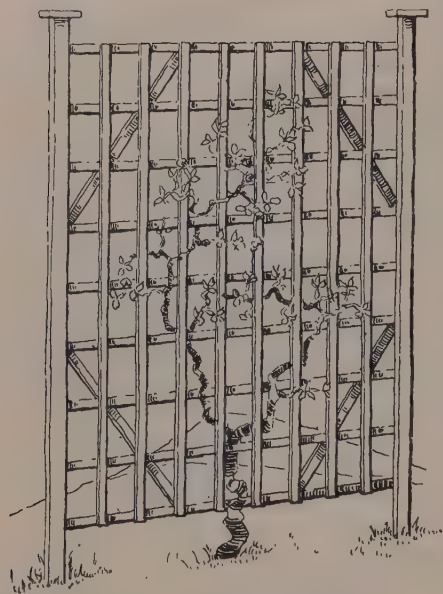


FIG. 1.—TRELLIS SCREEN.

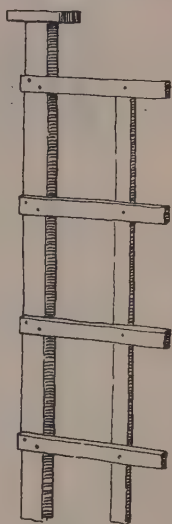


FIG. 2.—DETAIL.

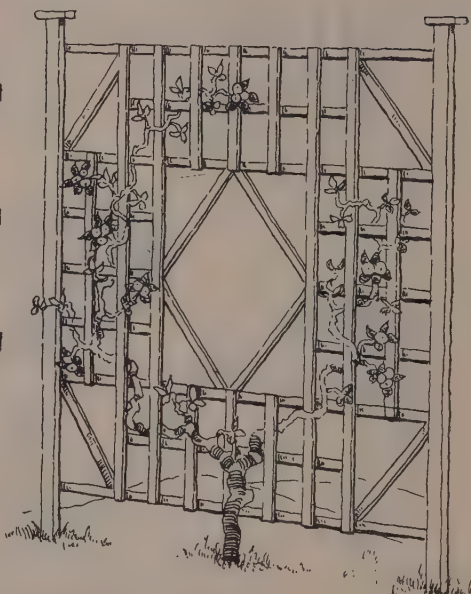


FIG. 3.—ALTERNATIVE DESIGN.

diameter; while the frame (C), is made with two sides, 1 ft. 11 in. long by $1\frac{1}{2}$ in. wide, and a rail 1 ft. 11 in. long by 2 in. wide by $\frac{3}{4}$ in. thick. The sides of the frames have their edges rounded (see Fig. 4), the top rails of the frames (A) and (B), have rounded corners (Fig. 5), and the rail of the frame (C) is planed to the section given at Fig. 6 to allow it to engage easily in the notches in the bottom frame. The flat rails are tenoned into the sides of the frames, and the round rails should be shouldered down, as at Fig. 7, and bored in. All the rails are kept 1 in. in from the ends of the sides, the joints are glued, and nails are driven through the sides to fix the joints. Iron rivets, $\frac{1}{2}$ in. diameter, should be

used to fix the frames together (Figs. 2, 3 and 8).

THE CANOPY FRAME (D), see also Fig. 9, is made with two sides, 10 in. long by $1\frac{1}{2}$ in. wide by $\frac{3}{4}$ in. thick, and a rail 1 ft. 11 in. long by 1 in. diameter, while the frame (E), see also Fig. 10, is made with two sides 1 ft. 10 in. long by $1\frac{1}{2}$ in. wide by $\frac{3}{4}$ in. thick, and a rail 2 ft. 1 in. long by 1 in. diameter. The frames are fitted with $\frac{1}{2}$ in. bolts and wing-nuts.

THE SEAT CANVAS, which should be 17 in. wide, is nailed to the flat rails of the back and bottom frames, and the canopy is made with a top and narrow sides sewn together. The chair should be in birch or beech.

(305)

Ornamental Trellis Screens

TRELLIS is often required in the garden for screens, to provide backgrounds for climbing plants, to form edgings and for other purposes.

In making trellis of this kind, the posts, which should be from $1\frac{1}{2}$ in. to 2 in. square, are cut to the length required, allowance being made for sinking them from 1 ft. to 2 ft. into the ground according to the height and weight which has to be carried. The trellis rails should be about 1 in. wide by $\frac{1}{2}$ in. thick. In the screen at Fig. 1 all the horizontal rails should be nailed to the back of the posts, as at Fig. 2. The perpendicular rails are then nailed in front of the horizontals, and finally the corner diagonal rails are nailed at the back. It will be seen that this method of construction dispenses with the usual large section top and bottom rails which are framed into the posts, and the result is a strong

and easily constructed piece of trellis which is kept quite rigid by the corner diagonal rails.

FOR THE SCREEN at Fig. 3 the same method is adopted, the four long horizontal rails being nailed to the posts first. The four long perpendicular rails are then nailed in front, after which the short horizontal and perpendicular rails are nailed in place, and finally the diagonal rails are fixed. Wood finials may be added.

The pieces of trellis shown measure about 5 ft. 6 in. in height by 4 ft. wide. When larger pieces are required they may be easily arranged, posts being placed about every 4 ft. Various designs may be formed with the trellis rails, but care should be taken to see that the openings are always higher than they are wide, a height of 6 in. and a width of 4 in. being good proportions.

Trellis of this kind about 2 ft. high is very useful for garden edging.

(306)

OUTDOOR WOODWORK JOINTS

THEIR SIMPLICITY AND EFFECTIVENESS

DURING the long light summer evenings one naturally desires to be in the open air, and this is the time to knock up your garden fence or build an allotment hut or garden tool shed.

It is quite probable that you wish to fence off a portion of your land for a dog or a poultry run, and of course you wish to accomplish the job in a cheap and efficient manner. At the left of Fig. 1 is shown a battlement or castellated type of paling, made up by nailing slating laths on to 3 in. by 2 in. cross rails, whilst on the right is a more open type with concave top. The most convenient method of purchasing the upright palings is to buy slater's laths, which may be obtained in two sizes. These are stocked by every builders' merchant and are made up of mixed lots of white and red deal, chiefly white, and sold in two sizes, i.e. $1\frac{1}{2}$ in. wide by $\frac{3}{4}$ in. thick at approximately 2s. 8d. per 100 foot run, or 2 in. by $\frac{3}{4}$ in., which may be procured at 3s. 7d. per 100 foot run. These laths or battens are not machine planed, but are left "off the saw" and may be creosoted without planing up. The simplest method for spacing the laths shown

that the horizontal cross rails are bareface-tenoned into the upright stumps, and that the diagonal straining pieces are cut out of slightly thinner wood. The upright posts should not be less than 4 in. by 3 in. and, if your pocket will allow, it is better to use 5 in. by 4 in. posts for the gateway. Gateposts can be obtained ready cut, having part of the trunk of the tree at their base as shown on the right hand side of the gate. In cases where it is necessary to lengthen the horizontal cross rails, the jointing is usually accomplished by socketing the bevel cuts, which are shown at A1, into the mortise of the uprights, thus making a self-wedging joint. In every case these joints should be smeared with paint or creosote before they are driven in position.

At A2 (Fig 2) alternative joints are given. The horizontal rails, for instance, may be bareface-tenoned and the brace simply butt-jointed and nailed. It is simply a matter of choice, having regard to the thickness of the wood and the time that can be expended on the work.

THE GATE (Fig. 1) has been kept as simple as possible and views are given of the jointing on both reverse and obverse sides at Figs. 3 and 4.

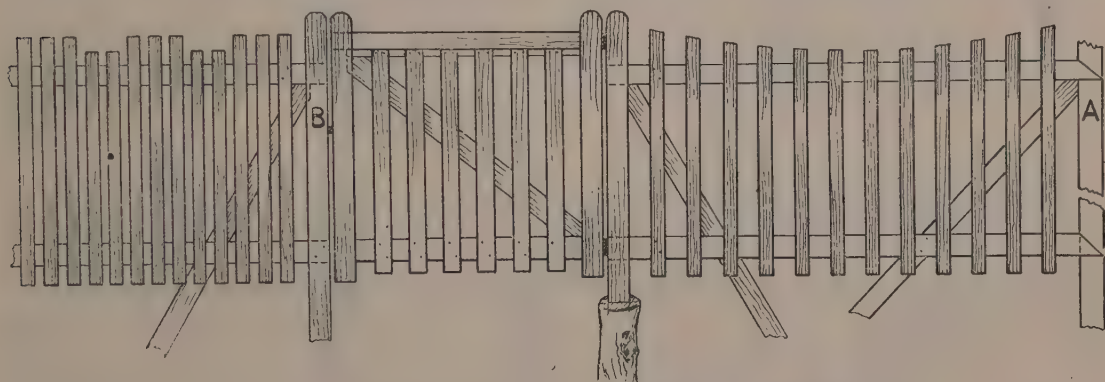


FIG. 1.—SIMPLE TYPES OF GARDEN GATE AND PALINGS.

on the left is to place them the width of a lath apart. By using one of the laths for this purpose setting out and marking will be eliminated.

THE UPRIGHT POST (B) should, if possible, be of oak and all the parts of the woodwork which run to earth should be charred in a fire to prevent their rotting. This method of carbonising the ends of the post is efficient and cheap.

METHOD OF JOINTING.

—At Fig. 2 (B 1) the method of jointing is given. It will be observed

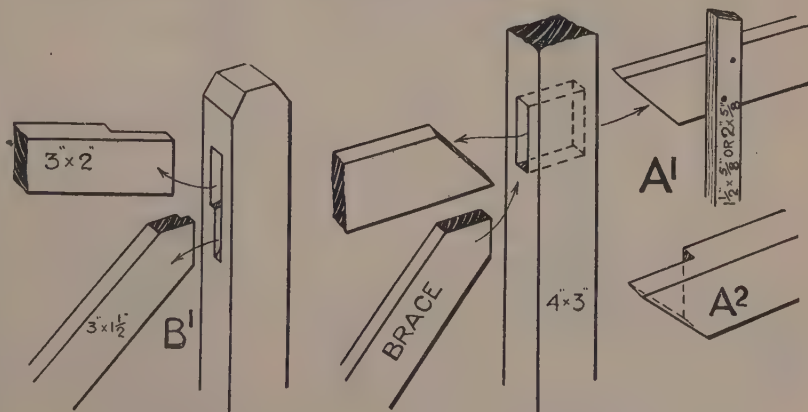


FIG. 2.—METHOD OF JOINTING FOR GARDEN GATE.

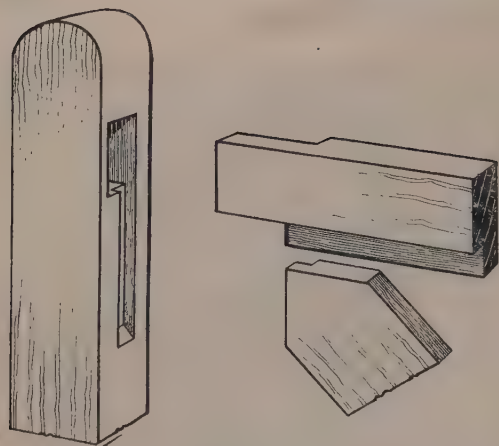


FIG. 3.—FRONT VIEW OF GATE JOINTS.

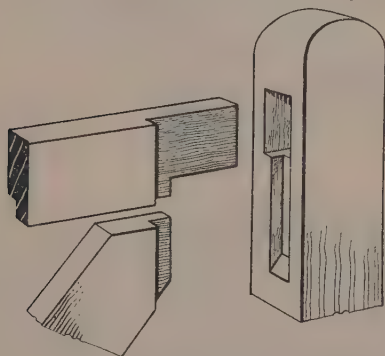


FIG. 4.—BACK VIEW OF GATE JOINTS.

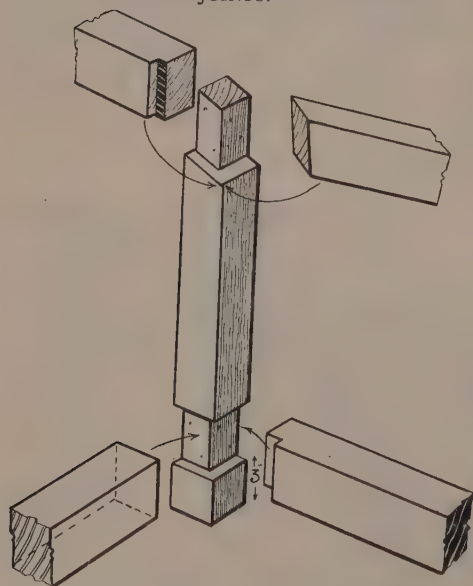


FIG. 6.—HOUSED AND NAILED JOINTS FOR SHED.

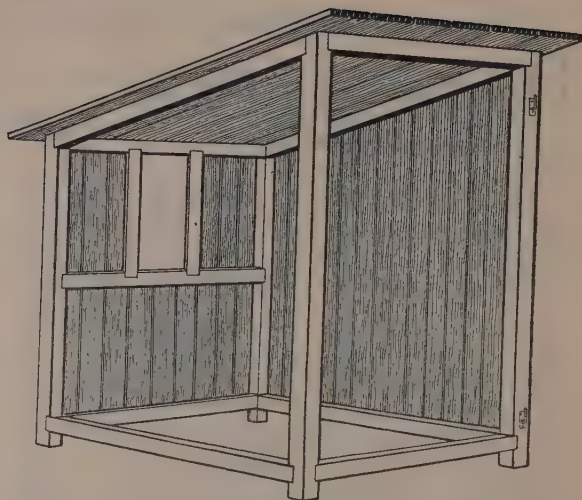
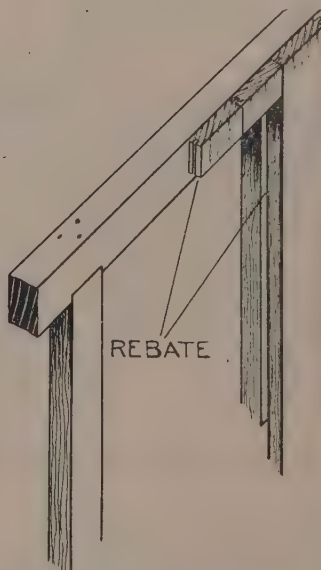
FIG. 5.—SKELETON FRAMEWORK OF TOOL SHED.
SIZE, 3 FT. 3 IN. ACROSS FRONT; 4 FT. 6 IN.
FRONT TO BACK.

FIG. 7.—METHOD OF FORMING REBATE FOR WINDOW.

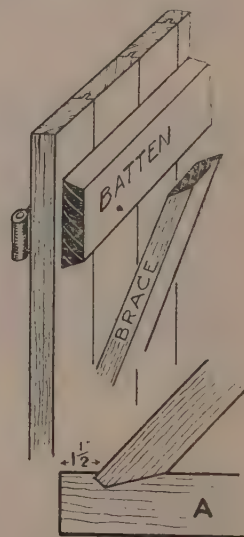


FIG. 8.—SHOWING BEVEL ON BRACE AND BATTEN.

It will be observed that the top rail is rebated so that the vertical rails will be flush with the face of the top rail when they are nailed into position with galvanised nails. The whole of the gate framing, with the exception of the laths, is best made of oak.

ALLOTMENT OR GARDEN SHED.—At Fig. 5 is given the skeleton framework of an allotment or garden tool shed, which measures 4 ft. 6 in. from back to front and 3 ft. 3 in. in width. The height of the shed is 7 ft. 3 in. at the front and 6 ft. at the back. The whole of the framework is composed of 3 in. by 3 in. white deal timber,

and a simple housing joint, $\frac{1}{4}$ in. deep, is adopted where all the rails and posts meet together. These joints (Fig. 6) are nailed together with 5 in. nails, and it will be necessary to bore partly through the upright pieces of wood to prevent the nails from splitting the timbers. A window opening is left at the back of the shed, and this opening is arranged of such a size that it is a multiple of the width of the boards which are used to cover the shed. A glance at Fig. 7 clearly shows the idea, and it will be noticed that the boarding is kept back $\frac{3}{8}$ in. to form the rebate for the glass and putty. This rebate must, of course, have a coat of priming paint before the glass is fixed in position, otherwise the putty will not adhere to the woodwork.

THE FLOOR is formed by nailing 1 in. tongued and grooved white deal flooring boards on top of the lower rails, these rails being kept at least 3 ins. from the ends of the uprights. The boarding for the two sides and the shed back should be out of $\frac{3}{4}$ in. deal matchboards, but the top should be of $\frac{3}{4}$ in. matchboarding. When completed, it should be covered with Anderson's or other reliable make of roofing felt.

The roof should be allowed to overhang all round the framework at least 4 ins. After laying the roofing felt give it a coat of tar and, whilst the tar is still tacky, sprinkle it with some dry sand, which will materially lengthen the life of the felting.

THE SHED DOOR is of the ledged type with diagonal braces to prevent it sagging or going out of square, and the method of constructing it and the position of the hinges is given at Fig. 9. The horizontal pieces or battens are slightly bevelled at their edges to turn the water, and it will therefore be necessary to bevel the ends of the brace pieces slightly in order to fit them (see Fig. 8). The braces may be simply butt jointed or, if time permits, may be housed into the battens as at Fig. 8A. This latter method is the best construction because it gives more support to the door and prevents it "racking." The door may be hung with strap or T hinges, and may be fitted with either a dead lock or a hasp and staple and suitable padlock. Three quarters of a gallon of creosote will be required for this shed. (310)

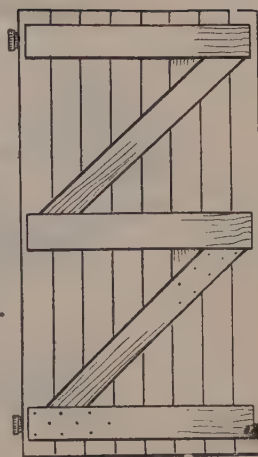


FIG. 9. — BATTENED DOOR WITH "DIAGONAL BRACES."

MAPLE.—Many varieties of this timber grow in profusion in most of the eastern and central States of America, in Canada, and as far west as California and British Columbia. The timber produced from these varied species is of excellent character in most cases, and deserves a much more extended appreciation than it has at the present time. The import that takes place is not an extensive one, and is almost entirely confined to converted wood in the shape of planks and occasionally boards, and to shipments of exceedingly well-prepared flooring boards, tongued and grooved both at sides and ends.

Its uses are restricted to a few varied purposes, chief among which is perhaps the manufacture of joinery work in the printing trade, the making of letter blocks and other work connected with this industry. It is also used in the textile trades for rollers, turnery purposes, billiard cues, shoe lasts, and in many other minor ways. In America and Canada it is a favourite material for the cabinet maker, and it is regrettable that it is not more generally appreciated for the same work in this country, for it is a clean, fine-grained wood, with excellent finishing qualities. Used for flooring, as it sometimes is, it makes an ideal surface, which wears clean and equally, and is besides exceedingly lasting. For fretcutting purposes in thin boards it is a favourite and reliable wood.

BIRD'S-EYE MAPLE.—From the sugar or hard maple, and possibly from other species, the beautiful figured wood known as bird's-eye maple is produced. This form of figured wood was once very popular, but has of late years declined altogether in fashion. Many speculative theories have been advanced to account for the "bird eye." It has been ascribed to the attacks of the woodpecker on the sap and to other causes, and is perhaps as likely to be the forays of some boring insects in their efforts to secure the sweet sugar secretion which is possessed by this tree. These injured parts where attacks have been made on a young tree are annually covered over and accentuated by the sheath of continued growth, and the tree develops with its wood marked with a mass of dimples that render it most attractive in its aspect.

MAGNOLIA.—There are four or five species of this tree, the growth of which is confined to the eastern and especially the south-eastern States of America. Stray parcels of this wood—probably produced from the mountain or the large leaf magnolia—have arrived in these markets during the last few years, but the timber is comparatively unknown. It is said to be most durable and is somewhat like whitewood in its weight, its yellowish grey colour and in its general appearance.

A USEFUL KITCHENETTE PIECE

COMBINED TABLE AND CUPBOARD WITH MANGLE FITTING

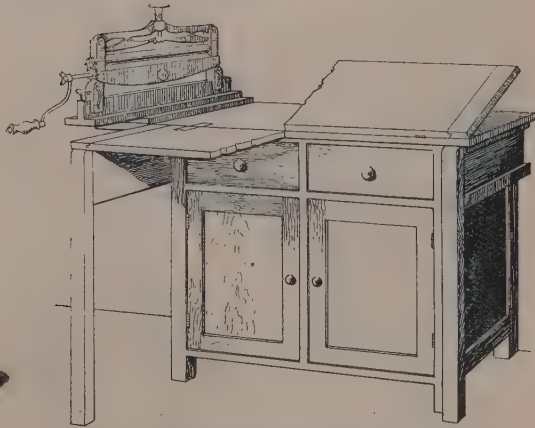


FIG. 1.—KITCHENETTE TABLE AND CUPBOARD, WITH MANGLE FITTING. LENGTH, 3 FT. 6 IN.

MANY wives and housekeepers experience difficulties when the chief scene of their activities is confined to the limitations of the modern kitchenette. The piece of furniture here represented is designed with the idea of making the best of the available space which can be conveniently allotted in a small kitchenette of dimensions approximately 10 ft. x 8 ft., in which a stove, sink, boiler and chair are already installed.

Fig. 1 shows a piece combining two cupboards, two drawers, a folding top, and a fitting for a table mangle which can be pushed round to the

back when not in use. With slight alteration a table may be made with either a folding top, or a mangle fitting, or both, by anyone not desiring the cupboard.

The virtues of cupboards and drawers need no emphasis. The depth of the carcase (only 14 ins.) makes it most congenial to narrow kitchens, while the top, opening out to the size of 3 ft. 6 ins. by 2 ft. 8 ins., gives good space for the duties of ironing, cooking, and similar domestic accomplishments. The mangle fitting is made to swing round to the back because it is out of the way, and it requires only the removal of a pin and a push from the hand to place it in that position.

When the mangle is in working position, it will be seen by Fig. 1 that it is very conveniently placed for use with the tub, and that the mangled articles can fall on to the table top. The objection to the mangle staying in this position is that the handle usually stands out a long way. Some readers may see a way out of this difficulty or think it negligible.

The piece as seen in the sketches has been made for 40/-, including fittings. The timber (yellow pine) cost 36/-, the 1½ in. flush ring handle 9d., and the 3 in. link-plate hinges 1/10.

The method of construction leaves out dovetailing (where reasonably possible) for the benefit of the woodworker who has no particular workshop or good bench with which to facilitate his construction.

THE CARCASE ENDS are framed with plywood panels. The writer uses one cramp only in glueing up, and dowels the tenons in when the fram-

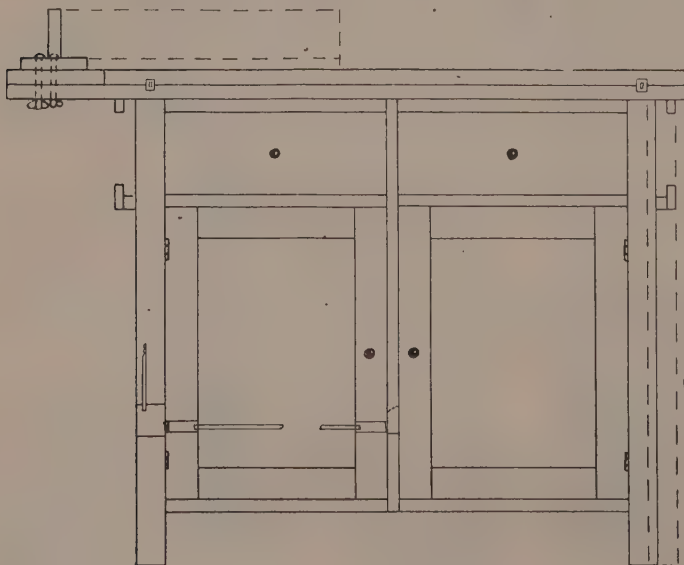


FIG. 2.—FRONT ELEVATION, WITH SCALE.

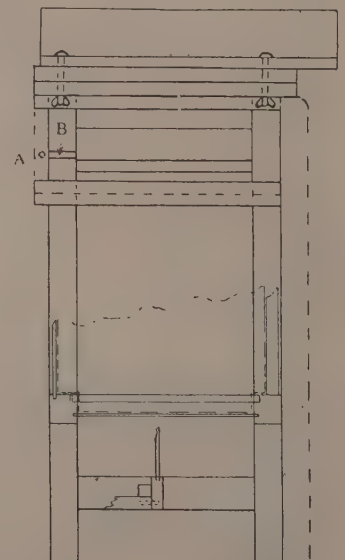


FIG. 3.—END VIEW.

ing has been glued and cramped up all round once. The cramp is then returned to the first cramping-place and the dowel-holes are bored from the inside of the frame until the point of the bit can be felt coming out on the outside. It is wise to see that the frame is well supported while driving in the dowel; a strong blow sometimes bursts the dowel through on to the face. The method is preferable to draw-boring because great accuracy is required for the latter method, and trouble is often experienced at the fateful time of glueing up. Dowelling the joints while each is in the cramp ensures a close fit and prevents any tendency to spring off when the cramp is removed, to cramp up the opposite rail.

The construction and assembly of the carcass is the next consideration. Fig. 4 shows a method of fixing the carcass bottom by dowelling and screwing into a block inside the carcass. The dowels take the weight and the screws keep the joint up. Pocket screws may be used in preference to the block.

The middle end can be pinned and wedged as shown in Fig. 4, or screwed into a stopped rebate in the bottom; bear in mind that the screws will be in end grain.

As the pins in the drawer-rails will be short, a method is shown in Fig. 4 (A) of putting a dowel through from one pin into the other, thus making it a sure job. The top bearers are dovetailed into the top of the legs, and the backs are rebated on to the legs and grooved into a muntin in the centre.

It is a good thing to put the strips for the shelves into position before assembling the carcass. The strip on the outside end is notched into the leg (see Fig. 4, B). If, when fitting the shelves reasonable care is taken, the front edge of the shelf can act as the door-stop.

DRAWERS.—When fitting the drawer-runners do not finally fix them until the drawer sides have been run in, then fix the runner with the drawer-side in position. This will facilitate the final fitting of the drawer considerably. Dust-boards are included in sketch and cutting-list, but may be omitted from this article if desired.

DOORS.—The fitting of the doors should present no difficulties, but a few hints may be given. It is well for the hinged stile and the slamming stile to be planed slightly out of square on the edges, ensuring that in the case of the hinged stile the inside edge is quite clear of the leg. In the case of the slamming stile, while the outside edge makes a dust-proof fit with the middle end, the inside edge will clear when opening the door. The whole thickness of the hinge should be let into the door stile.

After fixing the door, mark and half sink the leg flap of the hinge into the leg. The catch on a door of this nature does not require to be of a decidedly fixing or locking nature, and a $\frac{1}{2}$ in. ball catch placed near to the handle is the most convenient kind. To the person who has not fitted a ball catch before, it may appear to be somewhat bigger than $\frac{1}{2}$ in., but a few sharp raps from a hammer delivered through the

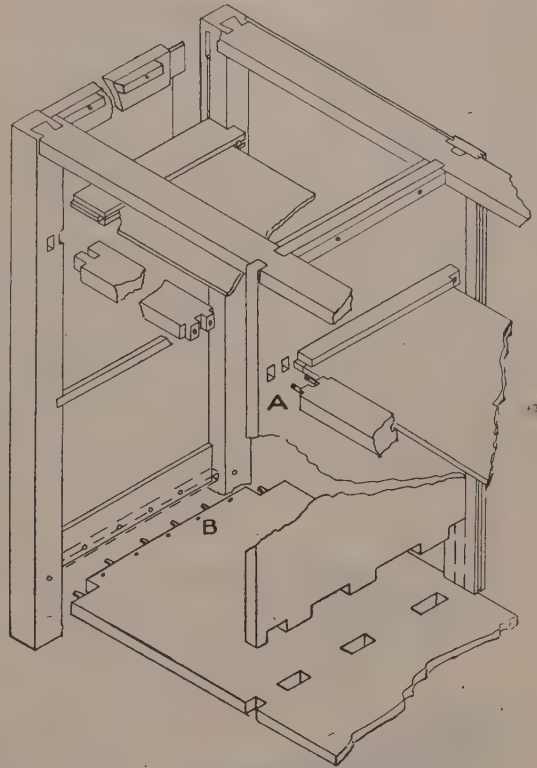


FIG. 4.—SHOWING THE GENERAL CONSTRUCTION.

medium of a block of wood should drive it into the pine without mishap.

The leg on each slide is of course to prevent the cupboard tipping over. Each slide is so arranged as to come well to the front when open, thus giving support to the front edge of the leaf when under the stress of one of those lusty bangs which are delivered from flat-irons upon our shirt fronts. The slide is stopped by a dowel on the inside and a slot is cut in the back leg to allow it to pass (see Fig. 3, A and B). The flap is best clamped, as shown in Fig. 2 to prevent any tendency to curl due to dampness or heat from the flat iron.

For the mangle fitting it is well to overhang the top more at the mangle end as shown, to facilitate the better use of the mangle in conjunction with the tub, which can be pushed further under the top. To those who do not require the mangle fitting the top will overhang equally at each end and the tops themselves will be equal in length. Link-plate hinges as shown should be used for the tops and a flush ring handle for the better raising of the flap when opening. The tops will be left in the white when finished. The carcass may be painted, white enamelled, or stained and varnished, to suit case.

(Cutting List is given on Page 214).

FOLDING CAMP BED

WE frequently get enquiries for details of the making of a camp bed which would be suitable for emergency use in the spare room, or be capable of quickly taking to pieces for packing in cases where it is desirable for use under canvas.

Leaving on one side the old-fashioned iron chair bedstead which, although fairly comfortable, is very cumbersome to handle when folded up with its cushions, there are several makes of camp bed consisting of a frame about 6 ft. long by 2 ft. 3 in. wide upon which a wire spring with iron frame is mounted, the whole being raised on strut legs made to fold and with a head rest fitted in similar fashion. Apart from occasional instability in these beds, however, there is usually a peace-destroying creak from the parts when in use that is very irksome when one's sole object is to sleep.

The suggestion offered here (Fig. 1) would be a simple affair to construct if a set of special fittings were made, whilst the whole thing would permit

played.

The frame itself will be made up of three pieces 2 ft. long for each of the sides and two pieces 2 ft. 3 in. long for head and foot ends. These ends will be dovetailed into position and further held by a couple of dovetailed rails into each. The centre portion of the sides may have rails dovetailed into them in a similar manner to head and foot ends; or, with the fittings to be referred to, these dovetailed rails may be omitted, in which case (if made of birch) the whole thing could pack into a space of 12 in.

A side elevation of the bedstead is given in Fig. 2, and an end elevation showing head-rest (Fig. 10); a plan of the sacking bottom laced for attachment in position is seen in Fig. 5, whilst the parts taken to pieces and assembled for portability (Fig. 3) might be enclosed in a fibre case, especially made by any firm of attache case makers at moderate cost, to assist convenience in carrying.

A set of four fittings of steel or brass will be required and these could be made by any local cycle repairer or smith. To effect their object of rigidity in use, it will be necessary for them to fit nicely, and for this reason it will be desirable to set them out to full size for the making.

FITTINGS.—As seen in Fig. 6, the haft portion will be made with a flange to fit the rail top and bottom for the purpose of screwing into position, and the haft itself sufficiently stout—say, $\frac{3}{8}$ in.—to take the weight. This haft will drop into corresponding box on the complementary fitting (Fig. 7), this part also being screwed into position top and bottom. A length of $3\frac{1}{2}$ in. for the flanges would be sufficient for the purpose in view, and these might be

slightly rounded in finishing so that they cut in sufficiently to allow them to finish flush with the finally rounded top edge of the frame itself. Such fittings in iron or steel

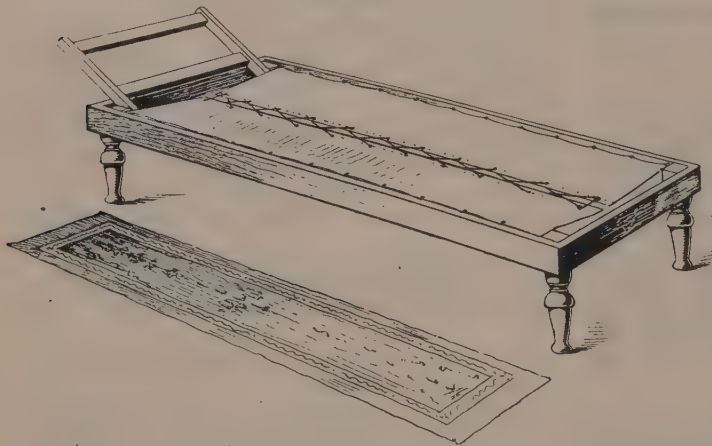


FIG. 1.—FOLDING CAMP BED.

of being folded to a size roughly of 2 ft. 0 in. by 2 ft. 0 in. by 12 in. or slightly less according to the wood in use. This folded size would include the sacking bottom with which the frame is furnished, the portion being folded easily to a size that will pack within the framing in addition to the set of four legs and a head-rest.

With regard to the actual framework this may be either of prime hardwood or of birch. If of the latter wood, stuff 4 in. by 1 in. net may be used, whilst in selected mahogany, walnut, or oak a net $\frac{3}{4}$ in. by $3\frac{1}{2}$ in. could be used, or for a lighter make $\frac{1}{2}$ in. net thickness could be em-

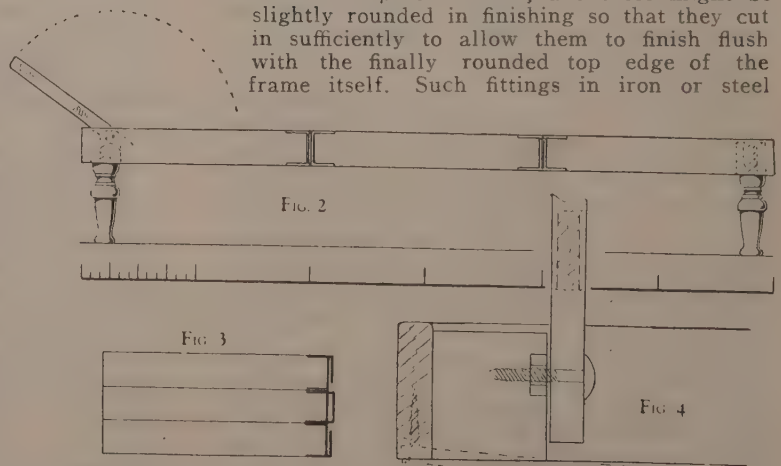


FIG. 2.—ELEVATION. FIG. 3.—THE THREE PARTS PACKED FOR PORTABILITY. FIG. 4.—PIVOTING ARRANGEMENT.

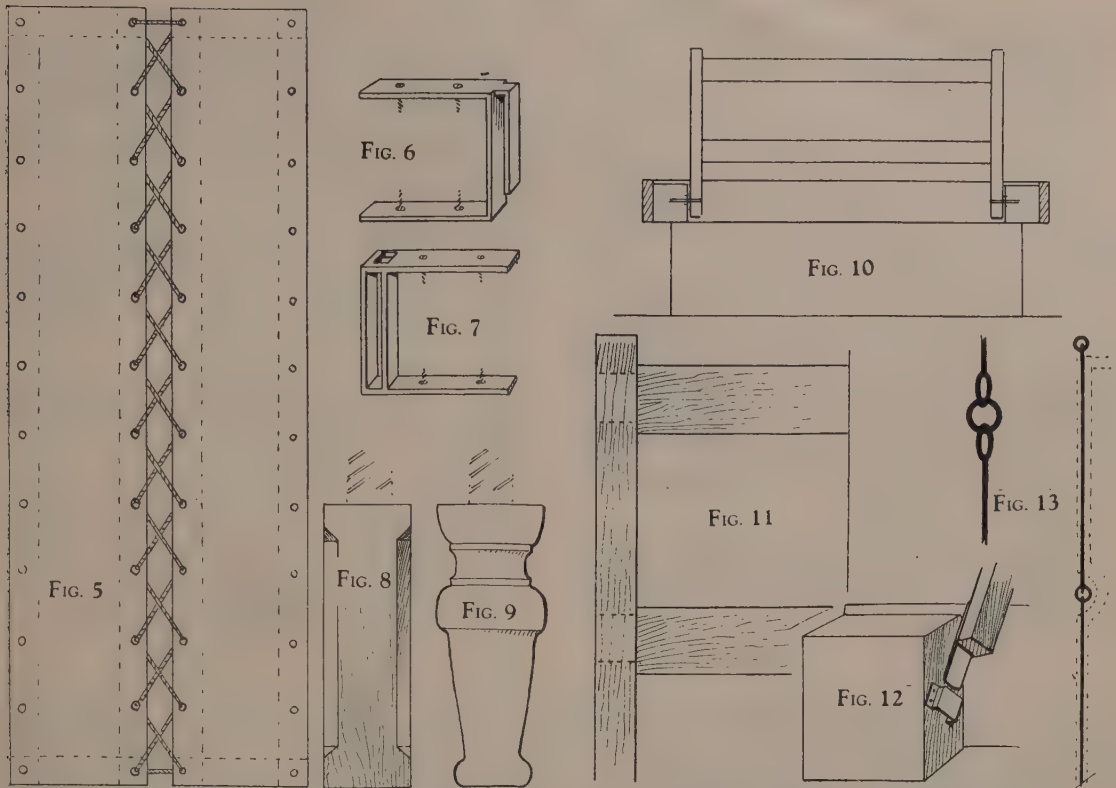


FIG. 5.—PLAN OF SACKING BOTTOM. FIGS. 6 AND 7.—THE FITTINGS. FIGS. 8 AND 9.—ALTERNATIVE LEGS. FIGS. 10, 11 AND 12.—HEAD REST. FIG. 13.—ALTERNATIVE BOTTOM ATTACHMENT.

might be enamelled black, or the steel might be nickelled for superior effect, although many will prefer to have the parts in brass.

If stretcher rails, which may be $1\frac{1}{2}$ in. by $\frac{3}{4}$ in., are fitted to the centre portions of sides, these may (in addition to being dovetailed) be steamed and bent so that they dip about $1\frac{1}{2}$ in. in centre as a clearance for the weight of the sleeper should the sacking bottom be allowed to sag unduly in course of use.

The head-rest, a sketch of which is given in Fig. 11, can be made up of pieces 1 ft. 3 in. by $1\frac{1}{2}$ in. by $\frac{3}{4}$ in. for the uprights, with rails $1\frac{1}{2}$ in. by $\frac{3}{4}$ in. mortised into position not too far apart.

If to be pivoted to fold down, this framework can be secured in position by fitting in the manner indicated in Fig. 4. A suitable nut will be sunk flush into the inner side of leg block, and holed sufficiently deep to receive the round headed bolt which passes through the lower end of uprights at a point that will allow clearance for the rest to fold down within the bedstead sides. These holes in the uprights may be bushed with brass ferrules to protect them against splitting in course of wear, whilst the framework throughout will answer all purposes better if the edges are eased to roundness.

If preferred the head rest may be kept loose

to pull out, in which case the bolt and hole can be dispensed with and the bottom end of uprights be fitted with a flat piece of brass or steel to form a staple $\frac{3}{8}$ in. thick, screwed on with the screw heads slightly countersunk. A corresponding slot can be made from a similar length of metal, tapped over in the vice so that it is sufficiently cranked for its purpose of holding the staple easily without undue play. The rest will obtain additional support from the bedstead framing, against which the uprights will bed, and the slot must therefore be sloped in position when screwing on so that it effects this (Fig. 12) whilst allowing the part to be withdrawn for packing purposes.

THE LEG BLOCKS will require to be of hardwood to finish in length to agree with the width of framework used so that all is flush under. The blocks will also require tapping, or working with a thread, for a screw which will be turned on the portable legs. These legs will be turned up from 3 in. by 3 in. stuff to some similar design to that indicated in Fig. 9; or if a lathe is not accessible it would be possible to fit a chamfered leg (Fig. 8), provided that this is so adjusted that it will not twist out of line with the framework in course of use. Such a leg might be worked from 2 in. by 2 in. stuff. Any slight looseness of the

screw portion of the leg in its block can easily be corrected by wrapping a piece of linen round the thread before entry.

BOTTOM.—In fitting the sling or sacking bottom, this should be made from stout sail canvas and would require eyelets at spaced intervals along the meeting edges of the two parts of which it is composed, and such eyelets may be either of metal or be stitched with good twine for the purpose of stiffening the whole thing when laced up in the manner indicated in Fig. 5 by means of a stout laid cord.

Each edge of the two lengths of sacking should be turned over about $2\frac{1}{2}$ in. and be stitched with a double row of stitching to strengthen it for the entry of eyelets (the spacing for which might be about 6 in. apart) so that the lacing will be sufficiently frequent to offer the required resistance to the possible fairly heavy weight of the user. Attachment will be by means of large round headed pins or screw-eyes to be entered into the bedstead framework.

AN ALTERNATIVE METHOD of attachment would be by means of three rods to each outer side of the sacking, each rod being eyed to form links for connecting; these rods in threes, when linked up, would be entered into a piping stitched for

them on the outer canvas edges and about 1 in. wide clear, the canvas also being sewn back to clear them freely at the linked joints in the manner indicated in Fig. 13, dotted line. This arrangement facilitates both attachment to hooks fixed within the framing and also permits the rods to fold with the sacking, so that the sacking bottom complete can be reduced to a size that will enter neatly within the packed framework.

A fibre case made up similar to the ordinary medium priced attache case with reinforced corners will be about as neat and cheap a method of containing the whole kit as possible, and might even include a rubber air pillow for economy of space.

Such a bedstead when packed could very well serve as a seat when not required for sleeping purposes, whilst its weight should be but little in excess of the ordinary camp bed. (208)

REMEMBER that we are now into summer. To avoid disappointment in regular delivery, readers are urged to have a definite order for THE WOODWORKER placed with their newsagent. Back numbers can usually be had (price 7d. post free) on application to the publishers: Evans Bros., Ltd., Montague House, Russell Square, W.C.1.

ROCK ELM.—This timber may be included in the few varieties of hardwoods that are generally regarded as constructional woods. It is essentially a ship and boat builder's timber, but at the same time is in good demand for wheelwright's and agricultural work, and it is used in fair quantities for bending purposes. The supplies are derived from the northern States of America and from Canada, where the trees attain a height of from eighty to one hundred feet, with a trunk which often ranges from three to four feet in diameter. It inhabits the upland districts, and prefers rocky ridges and slopes; hence the name.

In description it is moderately heavy—about forty-four pounds to the cubic foot—is very fine

and close in texture, and of a uniform light brown colour. It works exceedingly well, takes nails without splitting, and is most durable in wet situations. The wood is therefore greatly esteemed for boat work, naves, tackle blocks, gunwales and other boat-building work, and being, in addition to the qualities mentioned, exceedingly tough and elastic, it is an appreciated wood for use in the building of vehicles and the woodwork of agricultural implements. The timber is generally shipped in squared logs which average a moderate size, and is also sent in unmade logs in the round. A moderate trade is transacted in this fine wood, but the area of the consumption is not great.

Kitchenette Fitment

(Continued from Page 211).

CUTTING LIST:—

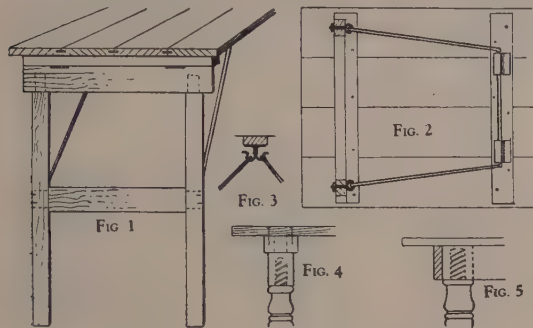
	Long.	Wide.	Thick.
	ft.	ins.	ins.
2 tops	3	6	$1\frac{1}{2}$
6 legs	2	6	$1\frac{1}{2}$
3 bearers	2	6	$2\frac{1}{2}$
3 runners		10	$2\frac{1}{2}$
1 middle end	2	0	$1\frac{1}{2}$
2 shelves	1	3	$1\frac{1}{2}$
1 carcass bottom	2	6	$1\frac{1}{2}$
4 carcass rails	1	1	$2\frac{1}{2}$
2 slides	1	4	$6\frac{1}{2}$
2 top guides to slides	1	4	$1\frac{1}{2}$
2 bottom guides to slides	1	4	$1\frac{1}{2}$
2 bottom guides	1	4	$1\frac{1}{2}$

	Long.	Wide.	Thick.
	ft.	ins.	ins.
2 top clamps	1	4	$2\frac{1}{2}$
4 door stiles	1	6	$2\frac{1}{2}$
4 rails	1	2	$2\frac{1}{2}$
2 panels	1	2	12 ply
2 drawer fronts	1	3	$5\frac{1}{2}$
4 drawer sides	1	0	$5\frac{1}{2}$
2 drawer backs	1	3	$4\frac{1}{2}$
4 do. slips	1	0	$1\frac{1}{2}$
2 do. bottoms	1	3	12 ply
1 carcass back muntin	2	0	$2\frac{1}{2}$
2 do. panels	2	1	15 ply
2 do. side panels	1	9	12 ply
2 dust boards	1	0	12 ply
1 mangle fitment piece	1	6	3
1 piece	1	6	2

THE QUESTION BOX

QUESTIONS only of general interest can be answered in these columns. Readers will kindly note:—(1) Detailed replies or sketches cannot under any circumstances be sent by post; but, as the Editor may require further information, a stamped addressed envelope should be enclosed. (2) Full particulars of what is required should be clearly stated, and (if possible) a rough sketch with over-all sizes enclosed. (3) Questions of purely personal interest cannot be dealt with in these columns.

NOTE.—With each Query must be sent a Coupon (see foot of page iv. of cover). All queries to be addressed: Editor, THE WOODWORKER, Montague House, Russell Square, London, W.C.1.



FOLDING TABLE FOR FIRST AID TENT.

Folding Table

C.W. (Luton) wishes to make a folding table for use in a first-aid tent.

REPLY.—You could make a fairly strong folding table, 4 ft. by 2 ft. in size, as shown in our sketch at Fig. 1. The table top may be of $\frac{3}{4}$ in. or a net 1 in. in thickness, the boards being preferably tongued together with hardwood tongues and glued up with the grain reversed alternately. As seen in part plan (Fig. 2) the top will have three $1\frac{1}{2}$ in. by 3 in. battens screwed on, the legs themselves being made up of $2\frac{1}{2}$ in. by 1 in. net or 2 in. by $1\frac{1}{2}$ in. net uprights, with a 3 in. by 1 in. stretcher rail tenoned right through and wedged or pegged. At the top a cross rail 3 in. by 1 in. or $1\frac{1}{2}$ in. will be mortised for the uprights to enter as indicated, and the whole framing hinged to the end battens under top. Either three or two $2\frac{1}{2}$ in. butt hinges should be used, fitted to allow the legs to fold under. When open the legs will be vertical, held in position with fair rigidity by means of two iron struts, each made from a length of $\frac{1}{8}$ in. iron rod, eyed at each end to link into stout screw eyes such as are usually obtainable from a marine stores, but fitted with nuts for secure attachment. Nuts, $\frac{3}{8}$ in. thick, could be sunk flush for neatness. The cross bar portion of the strut should snap into spring clips of the type indicated at Fig. 3, these being screwed under the centre batten (Fig. 2), or the strut might be made of such a length that the clip could be screwed to the thickness edge of the centre batten for the necessary rigidity. Such clips would have to be specially made by a local cycle maker or smith and would require to be of spring steel.

Alternatively, screw-in legs might be fitted, these when removed for portability being held by a couple of cranked rails screwed under the table top to form a rack. In the plainest manner a 2 in. by 4 in. block could be screwed to the table batten, and into this block a 4 in. by 3 in. by 3 in. block would be tenoned right through and wedged. This latter block (Fig. 4) would require tapping for a wood screw, turned on the top of leg, to enter.

A somewhat heavier table, which, however, should be quite rigid, will be made by fitting a 4 in. by $\frac{7}{8}$ in.

frame under the top which will be either glue-blocked or buttoned to it. Into the angles formed by this frame 4 in. by 4 in. blocks can be fitted, these being tapped to receive the turned legs in the manner before described. A section is seen at Fig. 5.

Whilst well seasoned pine or deal will make up a good table top either bass wood or birch may be substituted if somewhat rather rough usage is likely. It might be added that the ordinary barrack room table used for dining purposes is made on a similar principle to that shown at Fig. 1, and, as many hundreds of these tables were unloaded on the market after the war, it should be possible to obtain one of these for your purpose. (258)

Varnish for Display Stands

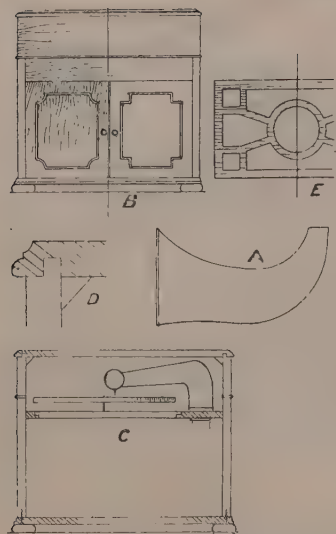
E. W. (Colchester) asks how to make a light yellow stain or varnish to finish oak.

REPLY.—It is not usual to stain oak yellow for shop window stands, because the orange shellac used to make the varnish will give the required yellow tinge. In fact, as a general rule the yellow shade has a tendency to become too pronounced. Try the following. Mix together 6 ozs. orange shellac and 1 oz. gum sandarac in one pint of methylated spirits, or a like proportion, and agitate until dissolved. Wipe the oak over with raw linseed oil; immediately remove any excess of oil with a dry rag and fill in with a paste filler such as a light oak filler. Allow the work to stand over-night after filling in, and then varnish with the above. It will require glasspapering smooth between each coat of the spirit varnish, and a polishing rubber charged with the mixture will aid you in obtaining a smoother and more even surface. At least six brush coats of the spirit varnish will be required: probably more, because oak is an open grained wood. (281)

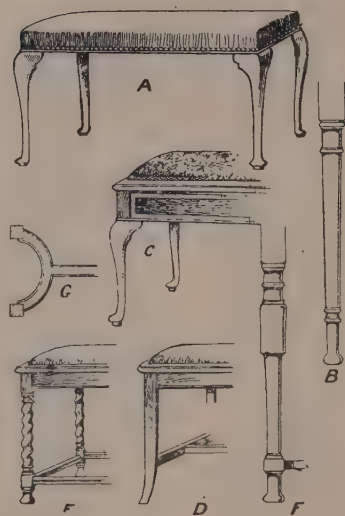
Colouring the Filler

J. S. (Wolverhampton) having used an uncoloured plastic wood filler finds that his work looks patchy after staining.

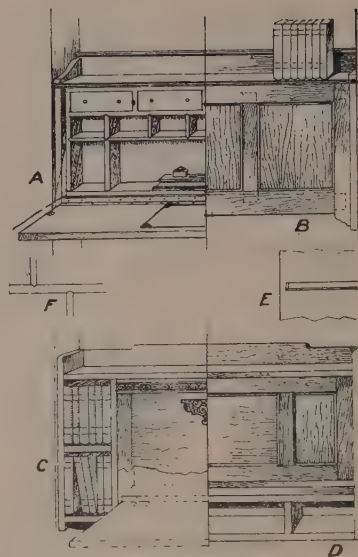
REPLY.—Plastic wood should not be used in its natural colour when filling up defects in mahogany, walnut and other dark-coloured woods, nor when such wood as canary is going to be stained to a darker shade, because the water stain will not be absorbed and the filler will show in small white patches on your finished work. The best method is to colour the plastic wood to the required shade by adding a little bismark or vandyke brown aniline dye, and to knead up the plastic wood between the fingers so as to work the coloured dye into it. Either of the above dyes may be made by dissolving the dry aniline powder in cellulose thinners or in methylated spirits. These aniline powders are highly concentrated and a very little goes a long way, therefore some care and experience is required to judge the correct shade for the coloured plastic. (269)



GRAMOPHONE CABINET (A.B.C.).



DUET PIANO STOOL (W.J.R.).



WRITING FITMENT (H.A.).

Table Cabinet Gramophone

A. B. C. (Highams Park) wishes to make a table cabinet gramophone, to include a horn which he has.

REPLY.—Your sketch is very explicit, but we think that with the horn (A), which you already have to a size of 14 in. by 8 in. by 14½ in. long, you will have slightly to exceed in height the 14 in. marked on your sketch. A finishing width of 16 in. and depth of 18 in. appears about right. The front elevation (B) shows a shade over 15 in., which would be about the minimum with a boxed lid and a somewhat low make of tone arm. The doors enclosing the sound chamber are kept plain as you wish, although they might be improved by the addition of applied ½ in. bead, mitred up in either of the ways shown in our sketch. The end elevation (C) may prove useful to you in setting out the casing. The sound chamber or horn space is allowed a full 8 in. in height to give a shade of clearance for the insertion of the horn, and immediately above this the turntable platform is fixed, allowing a thickness for this of ⅝ in. or ¾ in. as preferred, to drop into position on ledges rebated to receive it and fitted to inner sides of cabinet. The turntable itself usually requires a shade under 1½ in. in height when dropped on its pivot, whilst we presume that the clearance under cabinet top for tone arm and fittings will require for your purpose at least 5 in. If you space out your interior elevation on these lines, measuring up the parts you have as you go, you should not have much difficulty in fitting with fair exactness. In making up the boxed lid, this could be mitre-dovetailed together with a ⅝ in. top rebated to drop in and moulded on all four sides to project about ¼ in. only. Alternatively the frame could either be housed or tongued together and glue-blocked neatly in the angles, the top being also tongued into position as in section D.

The lower cabinet could be of ⅝ in. thickness with solid ends and back, the front put together with a rail about 2 in. wide above, to be tenoned into position, or dovetailed and finished with a ¾ in. by 8 in. surrounding capping frame for the lid to shut down upon. The cabinet bottom may be plain screwed into

position, to be either moulded in the solid, or finished with applied mould mitred round. Very slight projection must be allowed to this mould to keep the width to the 16 in. you stipulate and the blocks forming toes may finish about 2 in. by 2 in. by ¾ in., to be screwed into position. If you finish the doors with mitred bead, the fret-cut facing to the horn might fittingly take the form of the part suggestion given at E, which would look well if backed with silk gauze of a gold-bronze shade. Ordinary stout netting as used for curtains can be used for the purpose if dabbed over with gold bronze paint, which will stiffen it, and stretched taut behind the fret when glueing up. (285)

A Duet Piano Stool

W. J. R. (Dublin) wishes to make a duet size piano stool.

REPLY.—This should measure 2 ft. 9 in. to 3 ft. in length; 1 ft. 7 in. to 1 ft. 8 in. high and 14 in. to 15 in. wide, and may either be plainly framed up or may be made with a box for containing music under a lift-up lid, either cabriole or straight legs being fitted at choice. A shows an all-upholstered seat, which may be made up of cabriole legs that can be purchased in sets of four to the size required and put together with 2½ in. by ¾ in. rails, tenoned to legs, and the framing thus made fitted with 1½ in. by ¾ in. fillet on under edge to form a finishing bead. This bead should project a full ¼ in. from the framing and so form a ledge along which the upholstering material will be fastened, either by neatly entered round brass-headed nails or in a simpler manner with banding and spaced studs. The frame should be cross-webbed and covered with black canvas, and, if springs are desired, these will be sewn to the webbing in the usual way and tied down in the lashing so that they show a slight rise in centre. Stuffing may be of horsehair, fibre, wool or flock and such a stool will look well if covered with a good quality damask or tapestry, although many prefer moquette for hard wear. The framework may be stiffened if desired by dovetailing in either one or two stretcher rails to the lower edges

and screwing. In this size stool it would be advisable not to fit too slender a cabriole leg. If it is desired to fit a turned leg, this might be finished to the simple detail of B, using $1\frac{1}{2}$ in. by $1\frac{1}{2}$ in. stuff, and the shaft might be elaborated by either fluting or reeding.

If this stool with a cabriole leg is preferred with a box, the detail might be worked out as at C, the legs being fitted with rails about 4 in. wide to be mortised and tenoned together and a bottom of $\frac{1}{2}$ in. stuff or plywood screwed up from under, a finishing bead being fitted along bottom edge as before. The lid may be put together of $\frac{3}{4}$ in. by $1\frac{1}{2}$ in. rails, mortised and tenoned together and pegged, and the inner edge rebated $\frac{3}{4}$ in. deep. This frame will be cross-webbed, if to have a permanent stuffing, or a separate drop-in seat could be fitted tightly if specially desired. You do not state what wood you propose to use, but the framing would look well in mahogany with a $\frac{3}{4}$ in. or $\frac{1}{2}$ in. cross-cut satinwood banding inlaid.

In some cases a stool is preferred with the type of leg shown at D, to kickout at angle, and in this case an underframing would be fitted as in the sketch, using $\frac{3}{4}$ in. by $\frac{3}{4}$ in. fillet. Another type of stool in oak can be fitted with twist legs, in which case the underframing would take the form shown at E. An alternative leg is offered at F, and with this an underframing a little more elaborate could be fitted on the lines of G, the design being suitable for walnut or mahogany. (289)

Wall Writing Fitment

H. A. (Liverpool) wishes to fit a recess with shelves and a fall door to open down for writing purposes.

REPLY.—We presume that you wish to fit the full width of recess, 3 ft. $1\frac{1}{2}$ in. by 14 in. deep, and offer two suggestions that would be suitable. As will be seen, the actual height of the fitted casing is 1 ft. 4 in., the interior arrangement having four $2\frac{1}{2}$ in. or 3 in. drawers immediately under the top shelf, with a space below of a full 10 in. clear, divided up into additional pigeon holes for stationery, etc. Provision is made for two inkwells and penrack with fair clearance around, and the fall is fitted with a blotting pad fixed in position with small round-headed brass nails. When closed the fall might show three equal panels with or without moulded surround, whilst a low back is added above as a finish, the top providing accommodation for a row of reference books of any kind. Construction in the simplest manner would require two outside ends, 8 in. to 10 in. wide, or these may be made up to a width about 1 in. less than the actual depth of the recess, both top and bottom being shaped to some simple line as indicated. Top and bottom shelves and ends can be of $\frac{3}{4}$ in. thickness hardwood or of deal, $\frac{1}{2}$ in. thick net. The shelves should be grooved into ends with the joint stopped back about $1\frac{1}{2}$ in. from front edge at E, and should be of a length to fix the ends tight against the wall. The drawer casing may then be made separately of $\frac{3}{4}$ in. thickness, and should be of a depth back to front to allow the fall to close about $\frac{1}{2}$ in. within the face line.

Instead of drawers fall fronts might be substituted, or a shallow tray might serve. The casing itself could be simply nailed or screwed together without jointing and, in addition to being screwed to ends from inside, will be supported by upright pieces V-grooved into under part of casing and fitment bottom. Horizontal pieces of 5 mm. plywood can then be V-grooved into these uprights and the centre space fitted with pigeon holes of convenient size.

The fall, if made to the full available width of recess, should be at least of $\frac{3}{4}$ in. thickness, and will therefore be somewhat on the weighty side. It will be best supported by a length of piano hinge instead of the usual brass butts, in addition to which brass chains might also be fitted. The fall itself is indicated as framed up of 2 in. stiles and top rail and a 3 in. wide bottom rail, the whole mortised and tenoned together and overlaid with a length of 5 mm. plywood on the inner side to be glued and panel-pinned down, or screwed to form a flush surface for writing purposes. On face the panel openings might be finished with $\frac{1}{2}$ in. ovolo mould, mitred up and dropped in for neat effect. The fall when hinged would have a leverage on the under side of bureau bottom.

If a narrower writing space would answer the requirements in view, say, about 2 ft. wide, it might prove convenient to fit bookshelves on either side as at C, with the fall hinged to a shelf about $2\frac{1}{2}$ in. above the bottom bookshelf, so that when up it may finish in line with the latter. A full 9 in. height is allowed for each row of books, whilst the fall may be allowed a projection of about 14 in. when down, so that when up it closes against a stiffening rail under the top, notched in position and glue-blocked behind. This rail may be relieved with strip decoration and a fret-cut device may be mounted under as a finishing effect, such detail being obtainable from the sundriesman. Another suggestion is to fit the casing as at D, with two shelves at bottom divided up and given the full depth. Above this recess the hinged fall about 3 in., so that when down it has a bearing and a slight slope on the projecting shelf immediately under it. This arrangement should render supporting chains unnecessary. Shelves would have the divisions V-grooved in as at F. (292)

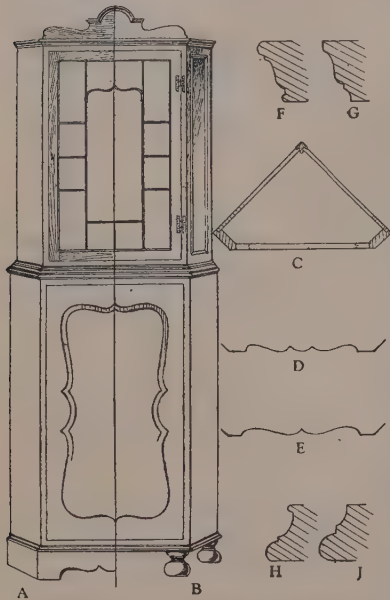
Repairing Blistered Veneer

A. B. (Putney) has a bow fronted antique wardrobe and one of the panelled doors has been left open near a radiator, blistering the veneer. Can he make a good repair without re-paneling?

REPLY.—Take a piece of yellow-pine or baywood, about 1 in. longer and 1 in. wider than the blister, and pare it with suitable gouges so that one face will exactly fit the convexity of the panel. A simple method of obtaining the shape is to lay a piece of M.2. grade glasspaper, abrasive side uppermost, on the panel and rub the saddle on to the glasspaper to obtain the correct shape. Warm a household flat iron so that you can just bear your hand on its surface, and with a darning needle prick two holes into the blistered veneer to let out the air. Damp the veneer, rub it with glue and then iron it down. Place a piece of white paper on the veneer, then your saddle and then put pressure on the saddle with cramps or hand screws. Leave the work for a couple of days or longer, then take off the saddle and examine the job to see if the blister is truly laid. If so, put the work aside for a week, then scrape up, glasspaper and re-polish the panel. If the blister has not been truly laid, cut a couple of slits into the veneer in the direction of the grain; iron it with a warm iron, the face of which may be soaped to prevent sticking; lift the veneer slightly and work strong glue under, then again lay it with the warm saddle. A sharp, thin-bladed penknife should be used to cut the veneer. In many cases the glue under the veneer is sufficiently strong to become reconditioned by the application of a warm iron and moisture, and the veneer can be laid by pricking only. (301)

To Complete an old Cupboard

D. O. (Carnoustie) wishes to make a new upper part to an old corner cupboard, and as the base has been destroyed, asks what form this would have taken.



RESTORING A CORNER CUPBOARD.

be either a solid plinth, plain or shaped as at A, or more probably the whole was raised on ball feet with a base mould as at B.

We could not state exactly what form an upper part of this particular cabinet, if such previously existed, would have taken, but as you wish for a glazed door, with thirteen panes, we offer a suggestion accordingly, the centre pane being cut with a shaped heading to agree with the base panel whilst keeping the whole door with a square framing. A capping mould above this might be of slightly heavier section and a simple shaping for pediment is also added, as we think something of this kind must have existed on the original piece. We note that dimensions of the base portion existing are 3 ft. high, 1 ft. 8 in. wide and 15 in. deep, back to front, measuring in the angle, and in making the upper part the carcass might be set back 1 in. on front and canted sides. This will afford lodgment for a projecting base mould to the upper part, which might be of a height to make up a total measurement of 6 ft. to the cornice top. Interior shelves may be of $\frac{3}{4}$ in. thickness with square edge, but in some cases these shelves were shaped, and, if you prefer the latter method, the line of the front edge of shelf might follow that of the side of your lower panel, as at D and E. (299)

A Welsh Dresser

H. L. (Liverpool) has the lower part of an old dresser, and wishes to convert this into a Welsh dresser.

REPLY.—We note that the dimensions of your old dresser are 5 ft. by 2 ft. 6 in. high, and we offer suggestions for converting it as you propose. The

only question that arises otherwise is as to the finished height, which in an ordinary Welsh dresser would run up to 6 ft. 9 in. and sometimes 7 ft. 6 in. This we must leave to you to settle, taking the design at A to complete a height of 6 ft. when mounted on its base. The best plan is to know beforehand what you propose to mount in the way of dishes on the dresser, so that a suitable space can be made for these at the top, the remaining spaces being averaged to receive dinner and dessert plates. As shown at A, the top is open, and below this are cupboards, about 11 in. to 12 in. wide, the space between being occupied by shelves. Depth for these may be anything between $4\frac{1}{2}$ in. and 7 in., with a groove or bead stop for ranging the plates. The cupboard door itself has a shaped heading to pivot on bracket hinges, which may either be quite small to overlap the door or may be selected with ornamental terminals. The door itself can be made up in hardwood to finish $\frac{3}{4}$ in. thick with a wide bevelled edge about $1\frac{1}{2}$ in., which will be lined up with $\frac{3}{4}$ in. thickness to follow the line of the door, but lessened in size to form a suitable rebate for shutting on to a mortised and tenoned framework, the latter made up by fitting wide rails to top and bottom of the space under notice.

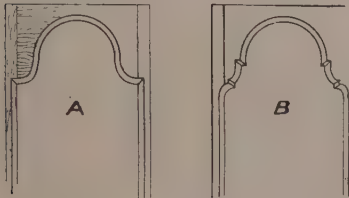
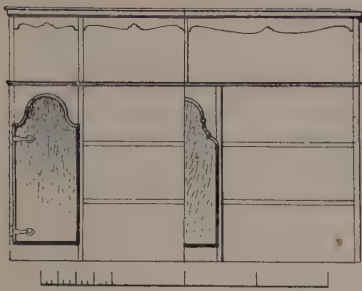
Alternatively the three lower shelves can be given a slight relief by working a $\frac{1}{2}$ in. bead along upper and lower edges on face. The back of such a dresser is usually made up of matching, V-grooved $\frac{1}{2}$ in. to 6 in. wide, with or without a battening rail top and bottom into which the matching is tongued, the whole being rebated into the ends.

B shows the upper part made up with one central door, which may be 12 in. or slightly more. A shaped heading to this door is given in enlarged detail below to assist setting out. If preferred a plain oblong door could be fitted, with leaded panes of plain or bottle glass. A lock and key could be fitted but strap-hinges could be omitted here. Quaintly shaped handles in Queen Anne style would be appropriate and escutcheon plates to keyholes would assist in imparting a little character to the whole. (287)

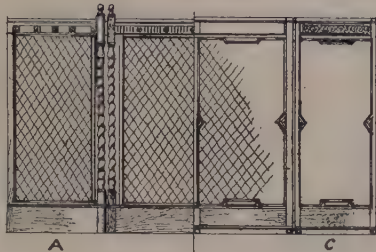
An Oak Fire Guard

T. C. E. (Birmingham) wishes to make an oak fire-guard to harmonise with a Jacobean suite.

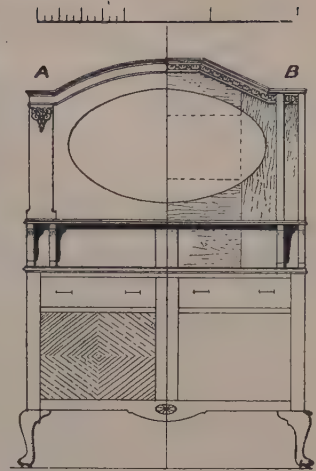
REPLY.—We make two suggestions, dimensions being as you desire, 4 ft. 6 in. long by 2 ft. 6 in. high, in a style that would go fairly well with most Jacobean furniture. We note that the projection from existing fireplace is to be 21 in., and in the present instance (A) the guard might be made up in three separate panels as shown in plan at B, the centre front framing being about 2 ft. wide full and the canted wing framings about the same width, or a trifle narrower if it is desired to fold the whole thing when standing aside. The framework can be made up of stuff $\frac{3}{4}$ in. thick for the frieze portion, which shows about $2\frac{1}{4}$ in. high, including a $\frac{1}{2}$ in. section mould on top. The frieze itself will be mortised into twist columns, using $1\frac{1}{2}$ in. by $1\frac{1}{2}$ in. oak for these and slightly paring the blocks top and bottom to lighten the face appearance of them as a finish. The twist portion shows a full 20 in. in height with a $3\frac{1}{2}$ in. length of block above and turned terminal $1\frac{1}{2}$ in. high. The plinth finishes a shade under 4 in. high, to be mortised into the uprights, with a length of applied bead on face along the top edge to be cut off flush at the meeting edges. At the distance of about 1 in. from the actual twist an inner upright, $\frac{3}{4}$ in. wide, is stubbed into frieze and



WELSH DRESSER (H.L.).



OAK FIRE GUARD (T.C.E.).



SIDEBOARD MIRROR (C.D.).

plinth and, within the panel formed by these uprights, a panel filling of brass woven wire with a stout wire edge is suggested, this being obtainable through most good class brass foundries.

For relief the frieze might carry flute-and-patera detail or, as indicated in the wing panels, tapered bosses might be substituted, these being obtainable from the sundriesman, glued in position at spaced intervals and further fixed by panel pins. These wing panels can have the wall uprights finished as twist columns to agree with the front, but it may be found more convenient to fit the uprights plain as shown, should your mantel be fitted with projections such as truss brackets on jambs. Instead of the wire mesh here it would be possible to substitute a series of light columns as a grille, turned up of 1 in. by 1 in. stuff and placed about their own width apart, or these could be fitted about 3 in. apart and the wire mesh fitted as a wire frame behind.

Alternatively the guard might be made up in six panels as in part plan at D, the panels being about equal in size throughout, and hinged together with brass butt hinges for folding. The frieze here is given a shade wider, moulded along top edge right through and defined by a bead surround. The plinth is a full 3 in. high, and lightened in effect by being raised sufficiently from the ground to fit small brass ball feet or rollers. The panel surround is broken by projections which should not be too heavy and the wire mesh introduced within. The frieze might be plain throughout or might be relieved by mounting slip decoration on face as in wing portion of C.

The stuff to be used should be of well seasoned oak only, specially dried in view of the purpose for which it is to be used, as unseasoned wood would inevitably twist out of line from the heat of fire. We do not know of any good preparation that will prevent wood from catching fire, but possibly if it could be impregnated with alum something would be achieved in this way. Usually a surface of wood much exposed to heat is protected, like the ordinary wooden curb, by a lining of sheet metal, usually brass, and if you wish to do something in this way possibly the design at C would suit your purpose better.

(291)

Oval Sideboard Mirror

C. D. (Bristol) asks how to fit an oval mirror to the back of his sideboard.

REPLY.—The sketch of lower part of sideboard sent with your letter, showing a height of 2 ft. 2 ins., is unusually low to include drawers, cupboards, and cabriole legs, which apparently would be about 8 in. high, and we therefore think that in making the back you should allow for a shelf about 6 in. high. This would increase the utility of the whole thing and at the same time raise the oval mirror to a height that will make it somewhat more useful in the room, at the same time retaining a better proportion for the sideboard throughout. This shelf would be supported by four brackets and, in line with the parting piece between cupboard doors, a slip might be introduced in width to agree and continue this feature up to the shelf in question. In making up the upper back, the oval opening may be cut from a framing mortised and tenoned together as shown by the part detail (dotted lines), using 1 in. stuff. This oval opening can then be moulded $\frac{1}{2}$ in. ovolo and be rebated at back to receive mirror, size of which might be 2 ft. 3 in. by 1 ft. 4 in. or a trifle larger, preferably with a bevelled edge. This back framing can be stiffened and improved in appearance by mounting $\frac{1}{2}$ in. thick pilasters on ends as at A, cutting them back about $\frac{3}{8}$ in. above the shelf and finishing by a capping mould, $\frac{3}{8}$ in. section, mitred to intersect with the finish of the framing itself, which is here (A) indicated as curved to agree with the line of the oval. If this detail presents any difficulty, the curved line of top may be substituted by a shaped top as at B, which will permit the mould to be mitred up in straight lengths.

A slight relief can be obtained by planting an ornamental slip immediately under this capping mould, or a leaf or egg and tongue section mould could be used instead of the plain section indicated. Instead of the end pilaster of A, a relief effect can be got by substituting lengths of $\frac{3}{8}$ in. by $\frac{3}{8}$ in. slip to butt between capping mould and shelf, and a small ornamental device could be introduced above between these slips as shown (B).

(286)

FIGURE IN MAHOGANY

ONE of the chief features which distinguishes mahogany and which renders the wood in many instances so attractive is the possession of what is termed figure. The term is widely and loosely used in regard to timber. It is sometimes applied to oak, when this wood has been radially sawn so that the medullary plates, or what is popularly known as silver grain, is exposed, or to other woods similarly converted, such as plane tree, beech, or other timbers. But figure of quite a distinct and of a finer character originates in mahogany, as well as in other timbers, not as a natural growth, but as the outcome of many varied extraneous circumstances which produce abnormal but beautiful results.

The natural development of the fibres of all woods tends to the production of straight grained wood; but at times conditions prevent this; it may be the action of high winds, the contraction of the fibres during abnormal climatic conditions, the action of the sun on one side of the tree, or many other causes which have given rise to much speculation. This deviation in the fibre, taking place perhaps in a young tree, is perpetuated as each successive sheath of new wood is yearly added to the growth, and a more extensive variety of what may be called figured wood is found in mahogany than in any other timber.

ROE FIGURING.—The most common type of figure in mahogany is what is known as "roe." The salient characteristic of this form of figure is the alternate bands of twisted fibre which, more or less straight in conformation, run vertically with the axis of the tree. A remarkable peculiarity of these bands is that, when viewed in certain lights from either end, the light and dark stripes are reversed in their shades. Much botanical information in regard to this distorted structure of the wood would have to be acquired to explain this singular feature. It is a figure that is generally fairly abundant in the mahoganies, as well as in other woods. The Mexican woods from the Tobasco districts are favoured with this figure; it is common in Cuba, and fairly so in the mahoganies from Honduras and other South American districts. It is also frequent in the mahoganies from the west coast of Africa, especially the mahogany known as Sapele wood; this timber is generally so figured that the roe is of a singularly straight and unbroken description.

BROKEN ROE.—Being, as remarked, a common form of figure in many mahoganies, this roey wood is not held in such high appreciation as many other varieties of figure, except when it is found with its longitudinal bands of light and dark fibre broken at irregular intervals, or when, in addition to this latter circumstance, the bands of roe are broken up with cross mottle.

The latter mottle is of varied description; not only does it occur in conjunction with roe, but it may be found existing in combination with other varieties of figure. In a general way it may be defined as a more or less transverse wavy deflection of fibre, which, aided by light and

shade, are so accentuated that they appear in regular or irregular formations as in relief.

It is when in conjunction with broken bands of roe that this figure is seen at its best. Showing at times an irregular development that is most attractive in its formation, it has been compared to the impression of a bird's foot and has also been likened at others to an acanthus leaf. Whatever fantastic forms it takes, however, it is generally beautiful, the effect of this varied growth, the play of light and shade, and the addition of fine colour which may be found in mahogany, giving a picture of life and brightness that is always attractive.

FIDDLE MOTTLE.—Another form of figure which is fairly common in mahoganies (and may be frequently seen in sycamore) is what is known as fiddle mottle, this designation having been applied owing to the use of the latter wood in the construction of violins. In appearance it presents more or less regular transverse bands, the object viewed in certain light appearing to possess a rippled surface. It is fairly plentiful among logs of Honduras and African shipment, and while at times it is strongly developed throughout the greater part of a log, at others it is evanescent, showing strong perhaps on the outside, but absent when a few inches have been taken off the log.

HONEYCOMB FIGURE.—A further variety of figure is remarkable for its fine appearance, and also for the fact, so far as is generally known, that it is confined to two or three woods and these of widely divergent families. This is the so-called ocean wave, peacock mottle, or honeycomb figure. All these terms have been used to describe this singular formation of fibre growth, found occasionally (it might be said, very occasionally) in Tobasco mahogany, in the black walnut and the tulip wood or so-called poplar of the United States. It is perhaps more usual to find this formation of figure in the latter wood, but although rare it perhaps reaches its highest development in the black walnut.

CURL MAHOGANY.—Another form of figured growth may be alluded to. This is the curl, crutch, or fan, a type that is well known. It is not perhaps in such extensive use as in former days when it was so largely used by the cabinet trade for the fronts of drawers.

The development of these curls is quite natural, and the formation may be studied in the growth of most trees. These originate at the junction of the trunk where the limbs break away, or in a lesser degree where one bough breaks from another. Two pith centres are formed where the limbs start from the parent or other bough, and these centres should be found at both ends in all curls that are sent to market if well manufactured. Between these centres the feathered and wavy timber is found. This naturally-waved wood is often additionally enhanced in appearance by the possession of mottle, the result of which is probably due to extraneous circumstances, as in the same class of figure produced in other parts of the tree.

OAK LIVING ROOM SUITE

3.—THE CHAIRS

THE arm and small chairs shown in Fig. 1 comprise the third items of our living room suite. Generally speaking, four small and two arm chairs are sufficient for the average room. In the modern tendency of furnishing, however, the usual appearance of two arm chairs has given way to a pair of more comfortable and relaxing easy chairs, and with this idea in mind an alternative design of an easy chair is given in Fig. 6 to replace the arm chair if desired. Either design could be suitably adapted to match the remaining articles. For the loose seats or covers, a russet brown velvet would go well with a natural waxed finish, and a brown hide would look well for a Jacobean oak finish. If in polished blue oak, which is suggested, select a

good, steel-grey velour for the most attractive appearance.

SINGLE CHAIR.—Select good, straight-grained stuff for the legs and rails B, C and D (see Fig. 3). The rails are intended to be dowedled up, and as the end rails (C) have bevelled shoulders it would be advisable to rough out full-size a complete plan of either chair to the sizes given in Fig.

2. Rebate all rails for the loose seat frames to a width and depth of $\frac{1}{2}$ in.

Four $\frac{1}{4}$ in. dowels are sunk into the ends of each rail and allowed $1\frac{1}{2}$ in. long to fit into corresponding holes in legs. Shape the front legs as in Fig. 4 and work two reeds, each $\frac{1}{2}$ in. wide, on each shaped face. Mark and cut the back legs to the required shape. Fig 3 gives the necessary procedure for assembling.

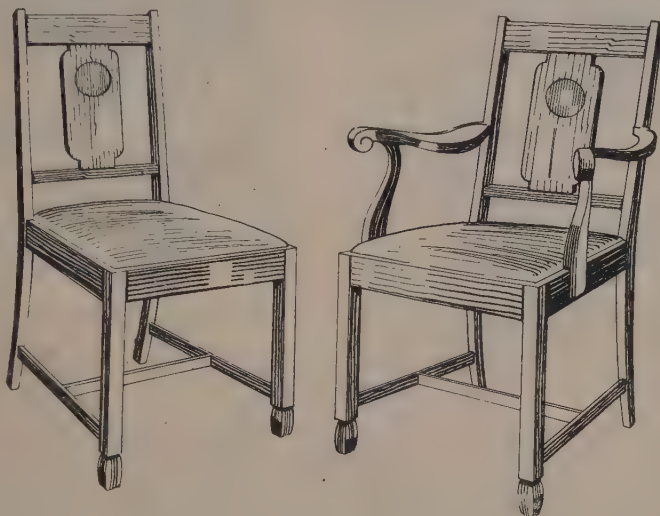


FIG. 1.—SINGLE AND ARM CHAIR FOR LIVING ROOM.

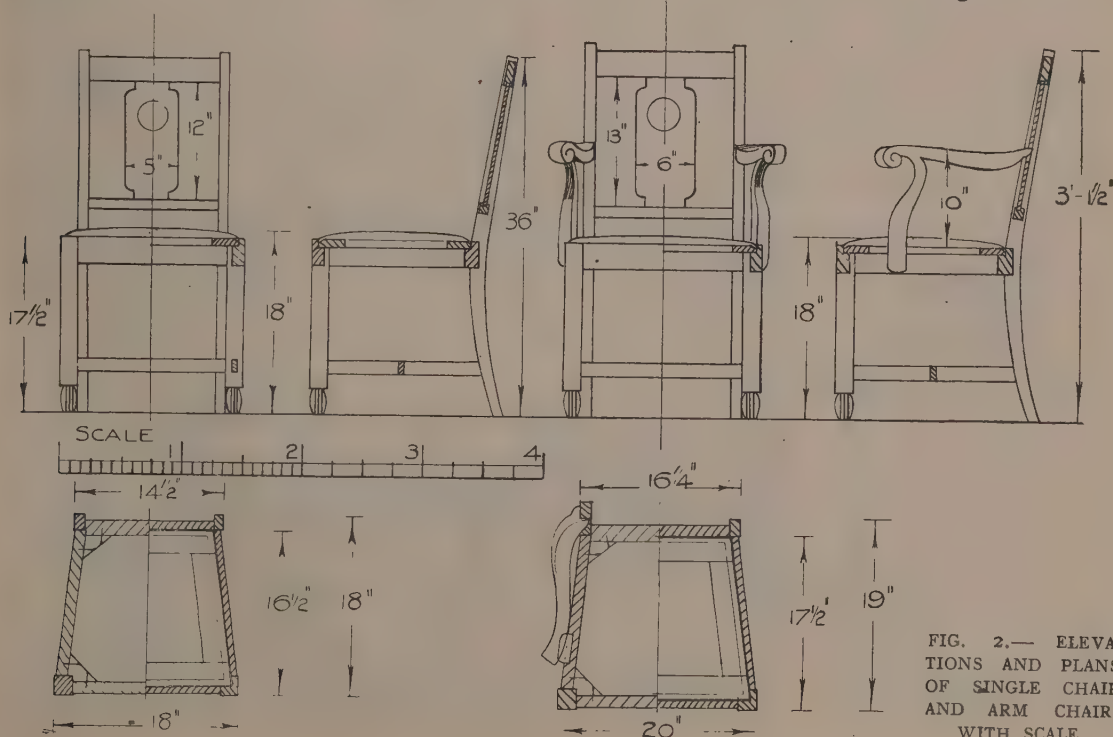


FIG. 2.—ELEVATIONS AND PLANS OF SINGLE CHAIR AND ARM CHAIR, WITH SCALE.

the necessary procedure for assembling.

Groove the top rail (G) and stay (F) to a depth of $\frac{1}{4}$ in. for the shaped splat (N) and then dowel to the back legs. Glue and pin the patera to the splat. At the time of cramping the rails D, F and G, insert the splat beforehand and glue up.

Dowel and cramp the seat rails to the legs. The stretchers (L), owing to their thickness, should be tenoned into the front and back legs, whilst the cross stretcher (M) could be tenoned or dovetailed from the under side into the end stretchers. When the chair is assembled fit and screw the braces (H) into position to give added strength.

The loose frames (I, J, K) might be dowelled up together or simply halved over each other. Allow $\frac{1}{8}$ in. clearance all round between the rails, and work a bevel on the seat frames to take off the hard and sharp corners when the seats are covered.

FOR THE ARM CHAIRS the details of the arms and stumps are given in Fig. 5, plotted to 1 in. squares. Carefully shape to the line given, first roughly with a bandsaw or bowsaw and finally

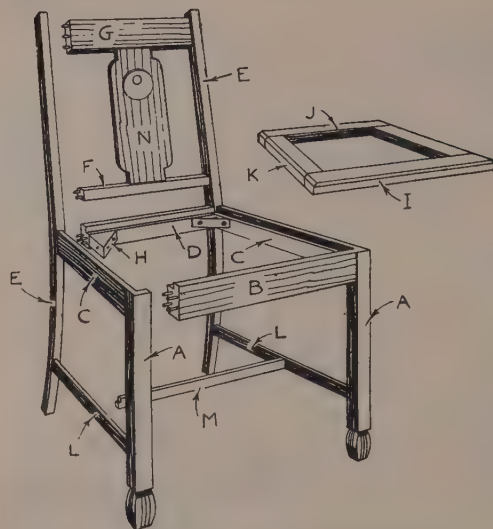


FIG. 3.—DETAILS OF CONSTRUCTION.

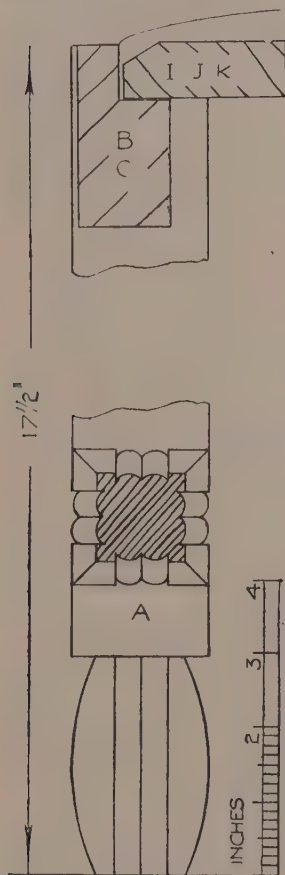


FIG. 4.—DETAILS OF CHAIR LEG.

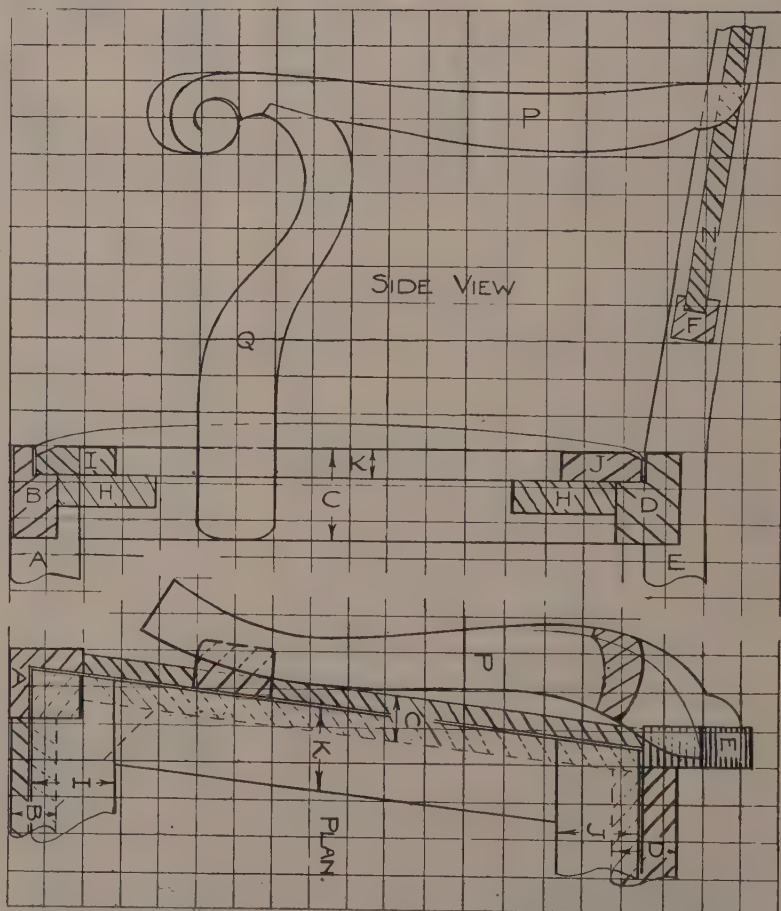


FIG. 5.—SIDE VIEW AND PLAN OF ARM, PLOTTED OUT IN 1 IN. SQUARES.

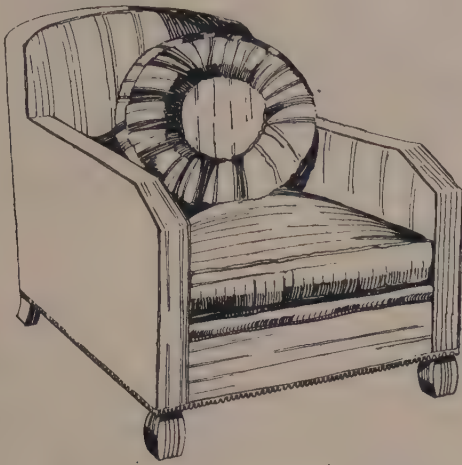


FIG. 6.—ALTERNATIVE EASY CHAIR.

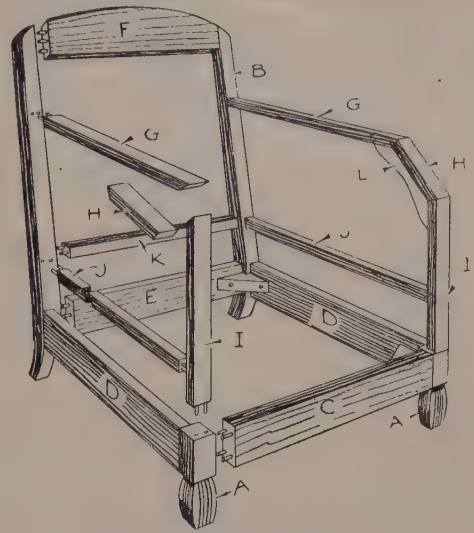


FIG. 7.—FRAME OF EASY CHAIR.

finish up clean with a suitable spokeshave. Hollow out the arms with a spokeshave at the back, working out this hollow gradually toward the front, as shown in Figs. 2 and 5.

The uprights (Q) are halved over the seat rails (C) and dowelled under the arms (P) at the top. The scrolls on the end of the arms might be carried around inside with a vee-cut. To fix the stumps (Q) and arms, screw through into the seat rails and back legs respectively, sink the screw heads about $\frac{1}{4}$ in. and fill up the holes with oak dowels. Remove all sharp arises, and clean down with fine paper for polishing, either nut brown, natural waxed finish or blue oak to match the previous articles published.

ALTERNATIVE EASY CHAIR (FIG. 6).—Shape the stumps A (Fig. 7) and work three $\frac{3}{8}$ in. reeds on each shaped face. Cut the back legs to the required rake and shape as shown. The stool rails

(C, D, E, Fig. 7) are allowed net length for dowelling between the stumps (A) and back legs. Four $\frac{3}{8}$ in. dowels should be fitted in the end of each rail and allowed $1\frac{1}{2}$ in. long to enter corresponding holes cut in the stumps and legs. Also dowel the end stuffing rails (J) and back rail (K) into and between the legs.

Shape the top rail-(F) and cramp up to the back legs with rails E and K. Dowel the uprights (I) down on top of the stumps, keeping the outside edges flush with the outside faces of the stumps. Dowel the arms into the back legs and mitre corner pieces (H) between the uprights and arms. To secure this strongly, shape a couple of blocks (L) and screw these into position, as shown in Fig. 7.

It will be noticed that a space of $\frac{3}{8}$ in. is allowed between the arms and upholstery line. This is allowed for a good padding, to remove

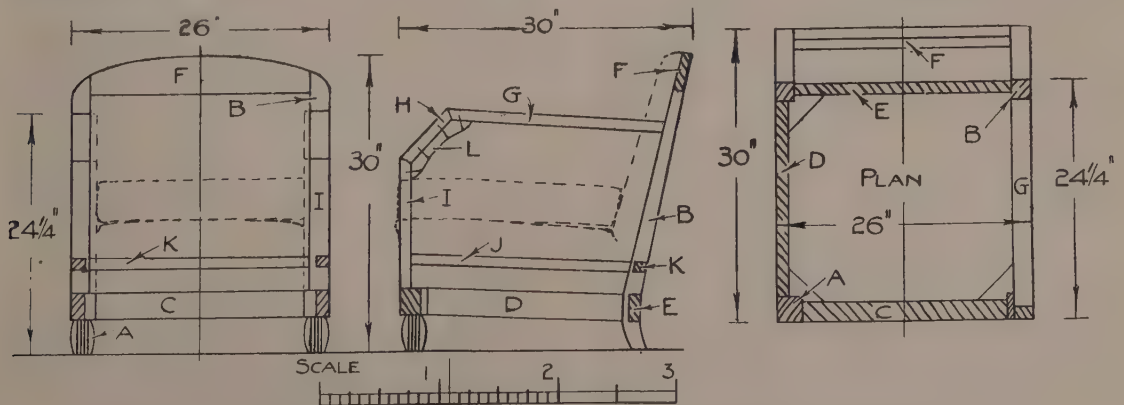


FIG. 8.—ELEVATIONS AND PLAN OF EASY CHAIR, WITH SIZES AND SCALE.

all hard edges when finally upholstered.

A spring edge is allowed at the front, whilst a cushion 4 in. thick might be added to the finished seat. Another point which might be emphasised to the upholsterer is the necessity of keeping neat, square-sewn edges to the arms and uprights. A decorative piping might be added along the arms, top and cushion edges, and a suitable braiding along the bottom edges of the chairs. Select material to match the other pieces.

CUTTING LIST FOR SMALL CHAIR:—

	Long. ft. ins.	Wide. ins.	Thick. ins.
A 2 Front legs	1 5½	1½	1½
B 1 Front rail	1 2½	2½	1½
C 2 End rails	1 3	2½	1½
D 1 Back rail	1 0¾	2½	1½
E 2 Back legs	3 0	4	1
F 1 Stay	1 0¾	1½	1½
G 1 Top	1 0¾	2½	7⁄8
H 1 For 4 braces	1 0	2½	7⁄8
I 1 Seat rail	1 5	2½	3⁄8
J 1 Back rail	1 2	2½	3⁄8
K 2 Seat rails	1 4	2½	3⁄8
L 2 Stretchers	1 5	1½	3⁄8
M 1 Stretcher	1 4½	1½	3⁄8
N 1 Banister	1 1	5	3⁄8
O 1 Patera	0 3	3	1⁄8

"DINING ROOM FURNITURE DESIGNS"—an entirely new edition. The designs selected are all modern in character, specially suited for present-day requirements. The items include two complete suites, and there is an excellent range of draw-extension tables in different styles. (Price 2/6 net). Evans Bros., Ltd., Montague House, Russell Square, London, W.C.1.

QUARTERED OR FIGURED OAK.—Everyone is acquainted with those markings which are observable in many oak planks and boards and which are commonly termed figure. The grainer, in his rather out-of-date work, did his best to imitate this feature of the oak and also the plain wood, combing in the frame work of the doors or other work in imitation of the latter and embellishing the panels, with more or less skill, in portraying the figure. This so-called figure, innate in the wood, is also known as silver grain, felt, and other terms, but to botanists as medullary plates.

It may be observed, on looking at the trunk of a tree at the end or transverse section, that numbers of fine lines emanate from the centre, or pith, pass through the heart wood, continue through the sap wood, and in some cases also through the bark or cortex of the tree; these are what is known as medullary rays. They are more readily observed when the tree has been long felled, the shrinkage of the wood opening these radial formations and exposing more fully the general structure and formation of the growth of the wood. These rays are common to all

CUTTING LIST FOR ARM CHAIR:—

	Long. ft. ins.	Wide. ins.	Thick. ins.
A 2 Front legs	1 5½	1½	1½
B 1 Front rail	1 4½	2½	1½
C 2 End rails	1 4	2½	1½
D 1 Back rail	1 2½	2½	1½
E 2 Back legs	3 1½	4	1½
F 1 Stay	1 2½	1½	1½
G 1 Top	1 2½	2½	7⁄8
H 1 For 4 braces	1 0	2½	7⁄8
I 1 Seat rail	1 6½	2½	3⁄8
J 1 Back rail	1 3½	2½	3⁄8
K 2 End rails	1 5	2½	3⁄8
L 2 Stretchers	1 6½	1½	3⁄8
M 1 Stretcher	1 5½	1½	3⁄8
N 1 Banister	1 1½	6	3⁄8
O 1 Patera	0 3½	3½	1⁄8
P 2 Arms	1 5	4	2 3⁄8
Q 2 Stumps	1 0	4	2 3⁄8

CUTTING LIST FOR EASY CHAIR:—

	Long. ft. ins.	Wide. ins.	Thick. ins.
A 2 Front stumps	0 6½	2 3⁄8	2 3⁄8
B 2 Back legs	2 7½	3½	1½
C 1 Stool rail	1 9½	2 3⁄8	1½
D 2 Stool rails	1 7½	2 3⁄8	1½
E 1 Stool rail	2 0½	2 3⁄8	1½
F 1 Top	1 11	4	1½
G 2 Arms	1 10½	1 3⁄8	1½
H 2 Corners	0 7	1 3⁄8	1½
I 2 Uprights	1 2½	1 3⁄8	1½
J 2 End stuffing rails	1 11	1½	1½
K 1 Back stuffing rail	1 10	1½	1½
L 2 Blocks	0 8	1½	1½
M 1 For 4 braces	1 0	2½	1½

Sizes are net and allowance must be made in length for tenons, paring, etc. (284)

trees; in many they can be at once detected, while in others, and notably in the coniferous section, they are so obscure that they need the aid of a microscope to discern them. Among woods in common use the oak may be mentioned as providing an excellent example of prominently marked rays.

Upon these rays, fragments of tissue, popularly known as silver grain or figure, are to be found in a more or less pronounced degree. This tissue varies in proportions both in width and depth, the development being so slight in some varieties of woods that the aid of the lens is necessary to detect it, while in others it is both wide and deep, this development causing a bold and pronounced formation which presents a striking feature in some woods.

A NEW EDITION of "Woodwork Joints" is now ready (3/6 net; post free 3/8). This volume has been thoroughly revised and brought up to date with many new illustrations showing the making and application of joints. Evans Bros., Ltd., Montague House, Russell Square, London, W.C.1.

THE WOODWORKER

VOLUME XXXIV.

AUGUST, 1930.

NO. 441.

TEA TROLLEY FOR LOUNGE OR GARDEN

WITH OR WITHOUT TYRED CASTORS

A NEATLY proportioned Tea Wagon which can be conveniently used as a side table against the wall when not otherwise required should have interest to many who have a special liking for the minor accessories of furniture that go towards furthering comfort and congeniality in the home circle.

The wagon shown has a top fitted with sufficient recess to receive a separate tray above it so that the latter can be readily lifted out for service as required. Immediately below this a full length drawer is fitted with a handle each end so that it can be pulled out either way. In addition a lower tray is provided at a height conveniently placed for a sitter in a low seat. This tray would be pivoted to legs to fold up flush with the top, where it might be held by a bullet catch or ornamental brass button. The whole thing would be light to handle, dimensions being 2 ft. 0 in. to 2 ft. 3 in. long by 16 in. wide and 2 ft. 8 in.

high. Made in oak it should afford an opportunity of a clean piece of workmanship, and neatly designed brass handles will assist the finished effect. Incidentally, the upper tray might have a bottom of plate glass.

LEGS.—In selecting the stuff for the legs (A, Fig. 4) choice should be made of pieces with the grain to run straight throughout, to be well seasoned and dry and finished to the net width and thickness given in cutting list less a slight clean up. The parts will require mortising for rails as these occur and also for the end drawer case fronts. The sketch shows these legs as quite plain, but if desired a $\frac{1}{4}$ in. ovolo could be

worked for the full length of the outer angle, or, if stuff $\frac{1}{2}$ in. thicker is used, the corners could be stop-chamfered without making them appear too slight.

THE TOP SIDE RAILS (B) are mortised into position, or they could be dovetailed into legs and the inner angle of leg (to the depth of the tray)

could be notched away for the latter to bed into. The end rails (C) can be correspondingly fitted; these will also be stop-grooved between drawer front and leg for the vertical pieces (E) to tongue into.

THE BOTTOM END RAILS (D) will be tenoned to legs and spaced when fitting to receive a drawer front $3\frac{1}{2}$ in. high net. The bottom or under-framing rails (F, Fig. 6) are tenoned into position as also are the corresponding end rails (G), and these can be further secured in position if desired by the entry of brass screw plates under. These rails might have the top edge rounded for finish and are fitted with a shade

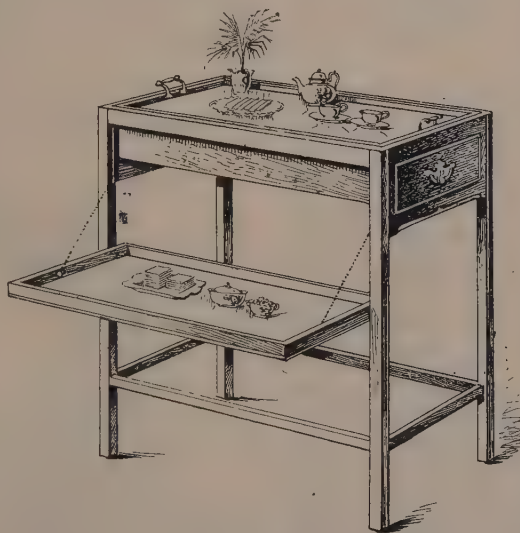


FIG. 1.—TEA TROLLEY, 27 IN. HIGH, 16 IN. OVER TOP. (MAY BE FITTED WITH RUBBER TYRED CASTORS).

over 6 in. high from ground.

THE WAGON TOP (H, Fig. 4) may be of $\frac{1}{2}$ in. thickness or 5 mm. plywood and can be grooved into the rails (B and C) or may rest upon narrow fillets glued to these rails for the top to bed upon. The drawer itself will travel upon slides glued to a pair of outer sides fitted to mask the drawer from view when extended at either end. These outer sides (I) may be dowelled or tenoned into position and may also be held by lengths of quarter round fillet glued into the length angle formed by these sides with the top. The slides (J) are formed by slips extending from end to end and can be glued into position carefully

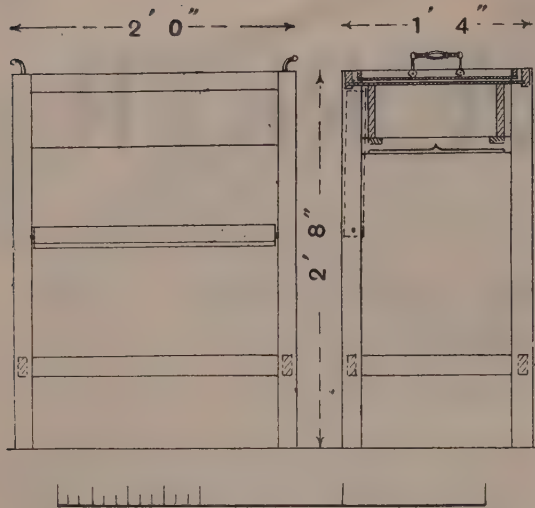


FIG. 2.—FRONT ELEVATION. FIG. 3.—END VIEW.
(NOTE THAT LENGTH MAY BE 2 FT. OR 2 FT. 3 IN.)

parallel, in addition to being further secured by about three screws into each, taking care that they finish dead level with the top edge of bearer rail (D).

THE DRAWER FRONTS (K, Fig 6) may be finished in the ordinary manner to close glove tight within the case opening, in which case a $\frac{3}{4}$ in. thickness must be used, the sides being dovetailed in the usual manner and bottom grooved in. A somewhat improved effect might be obtained here by making up the drawer front of $\frac{3}{4}$ in. thickness and facing this with a $\frac{1}{4}$ in. thickness hardwood front of a size that will overlap the case opening a full $\frac{1}{4}$ in. all round; the edge of drawer front would be moulded $\frac{1}{4}$ in. ovolo and the completed front if mounted with a well designed handle of the pierced type would prove attractive.

THE LOOSE TRAY (L, Fig. 4) which fits into the recessed table top should enter easily without play; that is to say, a full $\frac{1}{8}$ in. clearance might be allowed all round. Although detail in cutting list is for plain tray rim (Figs. 4—6), it would not be a bad idea to add a $\frac{1}{4}$ in. bead as a surround to all four sides of the tray, the bead being both glued and panel-pinned into position, thus forming a neat finish to the table top, in addition to providing a ledge which would suspend the tray and so mask any slight looseness that might be apparent when it is dropped into position.

THE FOLDING TRAY (M, Fig. 6) is allowed a width of 12 in. in cutting list, and when fitted within the wagon leg it should be pivoted at this distance below the top rail (B) in order that it may be closed to fit neatly when up. The sides had best be dovetailed together, although they can be merely mitred and keyed after glueing. The bottom could be rebated into position and neatly screwed, the holes being slightly counter-sunk and stopped.

For pivoting purposes a piano peg serves very well, this being entered through a hole in position in the tray rim and bedded firmly into a corresponding hole previously prepared in the leg, so that all finishes flush on the inside of rim. Alternatively a stout brass screw with round head may be used with sufficiently neat effect. Support for the tray when down, in the simplest way, may be had by fitting lengths of brass chain to both tray sides and legs, or suitable elbow joints may be fitted at each end if preferred.

When folded up in position the tray framing may be made to rest against the inner drawer casing sides (I), to be kept in position by an ordinary bullet catch.

For the purpose of ready service at table it may be found convenient to divide one end of the drawer up into spaces suitable for receiving separately knives, forks and spoons, and provision might also be made for a set of carvers if required. 5 mm. plywood will be suitable for this purpose and the effect will appear more complete if such divisions, after being grooved into drawer and to each other, are covered with green baize, or a cheap billiard table cloth, of which remnants can sometimes be obtained, the material being stretched and either glued or pasted, using adhesive of somewhat stiff consistency.

Whilst an open under-framing is shown below

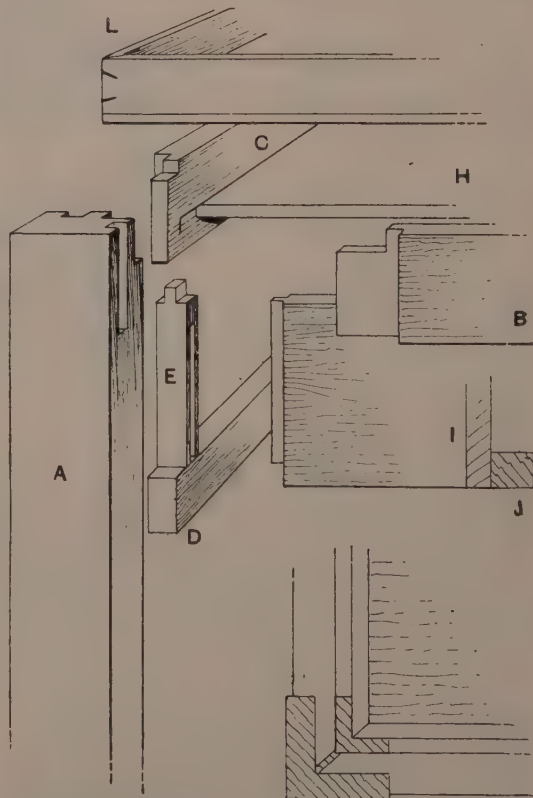


FIG. 4.—GENERAL CONSTRUCTION.

FIG. 5.—JOINT AT LEG.

for the sake of lightness, it may at a later period be found desirable to fit a shelf above this, which can be done by the use of a solid $\frac{3}{8}$ in. or 5 mm. plywood board (with edges neatly rounded off) fixed in position by notching the corners to fit round legs and glue-blocking in the angles under.

CUTTING LIST:—		Long.	Wide.	Thick.
		ft. ins.	ins.	ins.
A	Four legs	2 9	1 $\frac{1}{2}$	1 $\frac{1}{2}$
B	Two top side rails ...	2 3	1 $\frac{1}{2}$	1 $\frac{1}{2}$
C	Two top end rails ...	1 4	1 $\frac{1}{2}$	1 $\frac{1}{2}$
D	Two bottom end rails...	1 4	1 $\frac{1}{2}$	1 $\frac{1}{2}$
E	Four vertical slips ...	0 5	1 $\frac{1}{2}$	1 $\frac{1}{2}$
F	Two bottom side rails...	2 3	1 $\frac{1}{2}$	1 $\frac{1}{2}$
G	Two bottom end rails...	1 4	1 $\frac{1}{2}$	1 $\frac{1}{2}$
H	One recessed top ...	2 3	16	$\frac{3}{8}$ or $\frac{1}{2}$
I	Two drawer case sides	2 3	4 $\frac{1}{2}$	1 $\frac{1}{2}$
J	Two slides	2 3	1 $\frac{1}{2}$	1 $\frac{1}{2}$
K	Two drawer fronts to fit	0 11	4	$\frac{7}{8}$
	One drawer bottom ...	2 3	11	$\frac{3}{8}$ or 5mm ply.
	Two drawer sides ...	2 3	3 $\frac{1}{2}$	1 $\frac{1}{2}$
	One drawer centre division	0 11	4	1 $\frac{1}{2}$
L	Top tray: one piece to fit	2 3	16	$\frac{1}{2}$ or 5mm. ply.
	Two side rims	2 3	1	1 $\frac{1}{2}$
	Two end rims	1 4	1	1 $\frac{1}{2}$
M	Folding tray to fit ...	2 3	12	$\frac{1}{2}$ or 5mm. ply.
	Two side rims	2 3	1 $\frac{1}{2}$	1 $\frac{1}{2}$
	Two end rims	1 0	1 $\frac{1}{2}$	1 $\frac{1}{2}$

All lengths are full to allow for joints, paring, fitting and levelling, and apply to the 27 in. size wagon. Widths and thicknesses generally are net finished dimensions except where noted to fit.

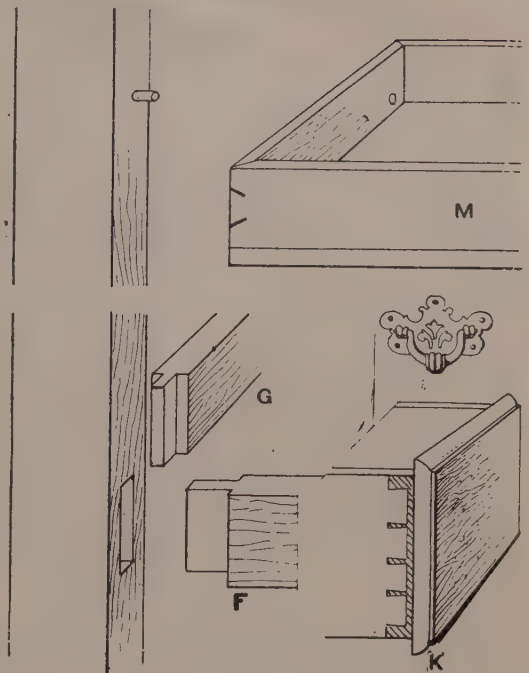


FIG. 6.—DETAIL OF DRAWER AND FALL TRAY.

Sets of rubber tyred wheels or castors are nowadays obtainable at a moderate figure, and if such are fitted the swivel variety might be considered before finally selecting. Such fittings may be obtained from The South London Wheel Works (Dept. W.), 61/63, New Kent Road, London, S.E.1. (315)

AMERICAN WHITEWOOD.—With the remarkable nomenclature that is often attached to timber, this wood is commonly known in the States as yellow poplar, and in this country as whitewood, canary wood and, often in ignorance, as basswood. Really the wood is the produce of the tulip tree, one of the largest as well as one of the most handsome arboreal growths of the States. The tree grows to a height of 150 ft. to 200 ft., and has a columnal bole clear of branches in many cases up to 80 ft., and develops a diameter which reaches up to 8 ft. or 10 ft.—unsurpassed in its aspect by any other tree of American growth. When, on the introduction of this wood to our markets, logs were received, it was no uncommon occurrence to meet some with a diameter of 4 ft. or over; but this fine wood is now a thing of the past, the timber which reaches us now rarely going over 24 in. wide.

The wood is essentially one for interior work, for it is not particularly strong, and will decay and rot in a very short space of time in damp situations or in moist places where air cannot

freely circulate. It is, however, an admirable wood, used as stated, and it is not surprising that in the cabinet and pianoforte trades, and also in the building, shop-fitting and other industries, it is so greatly appreciated and so extensively used. It takes stain exceedingly well, polishes in a satisfactory manner, and is a good foundation wood for veneer, as it readily absorbs glue. It has largely taken the place of pine in the above-mentioned cabinet trades, owing to the growing scarcity of this latter wood.

The wood in colour varies greatly with age and the locality from whence it has been derived. The finest will be found when it possesses a clear, decided yellow, the deeper the better, for it is safe to affirm that such wood has been procured from fully-matured trees, and will in consequence be mellow and unlikely to twist or warp. But other shades, even to grey, may be met with, and if stock is found of a clear, decided white colour a user may conclude that such is sap wood, with much poorer working qualities than any with a yellow or similar shade.

CHIPS FROM THE CHISEL

ENGLISH MEDIÆVAL CRAFTS

THE Exhibition of English Mediæval Art which is being held at the Victoria and Albert Museum at the present time, is of more than usual interest. It consists of an assembly of the various objects of English mediæval work of artistic importance that were scattered through the different departments of the Museum, with the addition of loans from private individuals and institutions throughout the country, the whole forming a representative collection of the very best of our mediæval art.

That is the same as saying the mediæval crafts, for English mediæval art finds its expression in all manner of craft forms. Perhaps we take for granted the richness of, say, Italian or Flemish mediæval art, but we are not accustomed to regard our own in the same category. Yet with these English mediæval crafts we find ourselves in the presence of something as vital, as spiritually alive, as in those other exhibitions at Burlington House to which we made pilgrimages, something, too, which has a morning freshness that entirely belongs to our sea-girt island.

Here are illuminated manuscripts, carvings and statuary loaned from old rural churches and cathedrals, embroidered vestments, copies of old wall paintings and some excellent brass rubbings, goldsmith's work, ecclesiastical and secular, and some fragments of old stained glass. Here indeed is a definite spiritual culture which had its roots in our native soil and produced a flowering that was both lovable and artistically desirable.

The first thing one would say about these mediæval craftsmen is that they looked at life observantly and with reverence and enjoyment. Their subjects are limited for the most part to the needs of the Church, but the range of thought which they brought to bear upon them was almost unlimited. They looked away from their subject to life itself, seeing its infinite variety, its comedy and tragedy, and they took this essence of life back to their art and made it a living thing. They had the advantage over us in this that for them spiritual reality was not divorced from life, so that the mediæval craftsman, in carving a Madonna, would give her the tenderness and humour he found in life and produce something exquisitely true to girlhood and motherhood, while we tend always to conventionalise what is hierarchic and rob it of its real significance.

There is the same life-communicating quality in the illuminated manuscripts. In the miniatures and page illustrations with which these Psalters and Gospels are decorated we find swift, vigorous line and a power of story telling that has an extraordinary naïve freshness and force. In fact, we have to clear our own vision, which is used to a suaver, altogether less direct form of expression, by careful study of each individual

picture, before we can realise with what spiritual depth some of these stories are rendered, and that with this very power of directness, this rushing straight to the core of the subject as it were, there is a very considerable amount of decorative skill.

We shall find this power of looking at life with directness and appreciation again and again. There is, for instance, a set of misericords—the "mercy" seats provided in choir for aged and infirm monks who otherwise would have had to stand all the time while reciting the Divine Office—and those small seats are supported underneath by carved groups of figures flanked on either side by quaint devices. The groups are almost entirely secular in subject and are carved with the utmost skill and truth. They include a hunting scene, which shows a magnificent stag pursued by two hounds, a terrified hare scuttling away through a scroll on the left. Although this has suffered damage and the hounds are headless, their crouching bodies are wonderfully realised and full of tense life, the whole group in all its vigorous feeling being obviously the work of continued sympathetic observation. The man who carved them *knew* his animals and saw the beauty of the life that was in them, and this realisation had combined with the skill of his fingers to produce a work of art.

These things are good for us to see to-day because our tendency is to allow ourselves to be distracted more and more away from the beauty of ordinary, everyday things, and to allow our zest for life as life to suffer for want of paying any steady, due regard to it. Everything is so much more complex than it was, there is so little leisure, that we miss the very source of the richness and fertility that governed the powers of our mediæval fathers. Did they but design a bishop's pastoral staff or a table salt, they crowded it with their feeling for life, with the profusion of their interest in the world of the flesh and the spirit, and the quaintness and resourcefulness which comes of things which spring from the soil. In our own times at least one writer, Katherine Mansfield, has caught a gleam of this same spirit. What distinguishes her work from that of her contemporaries is her power of direct vision, her delight in every detail of visible life for its own sake, her constant, sympathetic observation taking her below the surface till she touches the common chords beneath. Hers was, like every true artist's, an instinct for the underlying beauty of the everyday world. It is by cultivating this instinct that we may hope to see a revival of our crafts, for the artistic instinct is one and the same in whatever form it is revealed. It will flourish most richly and sturdily when it arises out of the zest for life which comes from the contemplation of life, and from the natural desire of the heart to guide the hand and portray what the eyes have learned to love.

A PORTABLE BATHING TENT

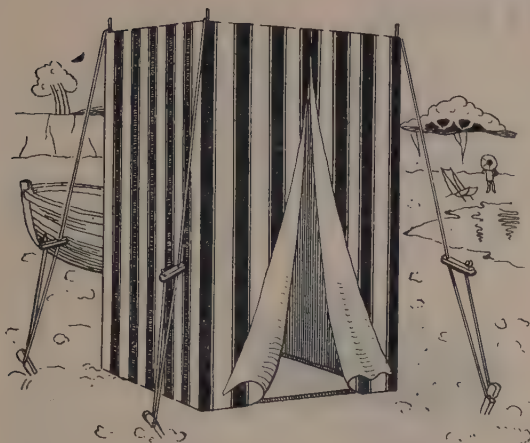


FIG. 1.—A PORTABLE BATHING TENT.
SIZE 3 FT. BY 3 FT. AND 6 FT. HIGH.

THIS bathing tent may be easily and cheaply made by the woodworker and will be found very useful during the summer season. It is light and may be packed up quite small for carrying; erection takes only a few minutes, and it may be used for many other purposes besides bathing. As shown at Fig. 1, the tent is made with a wooden framework consisting of four upright rods and four top and four bottom cross rods, which are fitted together by fixing spikes to the ends of the upright rods and screw-eyes to the ends of the cross rods. A canvas covering is

made to fit over the frame, and the tent is held firmly by means of four guy ropes.

THE FRAMEWORK with suitable dimensions is shown at Fig. 2. The upright rods are 6 ft. long by 1 in. diameter, and for convenience of carrying they could be jointed in the middle with a ferrule about 6 in. long, as Fig. 3. Ferrules about 1½ in. long should be fitted at the top and bottom ends, and the spikes, which may be formed from long wire nails with the heads removed, should project about 2½ in., as at Fig. 4. The cross rods are 3 ft. 3 in. long by 1 in. diameter, and ferrules and screw-eyes are fitted at the ends.

THE COVERING may be of canvas, a cheaper striped material or even unbleached calico, sewn at the edges and around the top, and slit up the front to form an opening. Eyelet holes should be worked in the top to allow the spikes to pass through, and four guy ropes should be made with looped ends to fit over the spikes, as at Fig. 5. The ropes are held down with wooden pegs (see Fig. 6), and are tightened with toggles (Fig. 7). (321)

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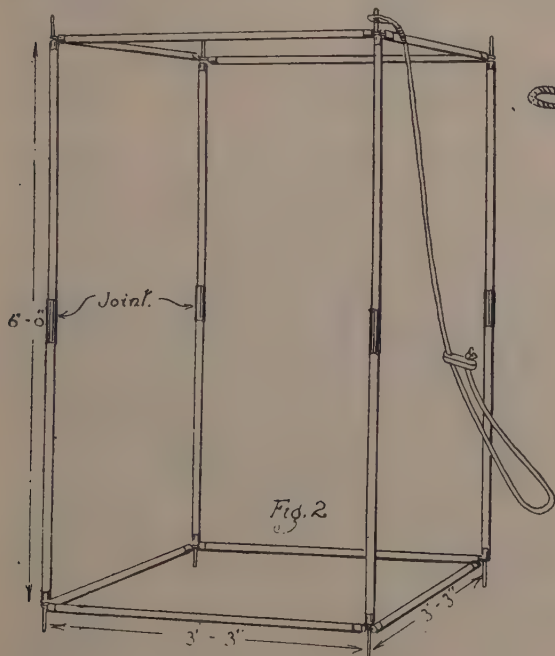
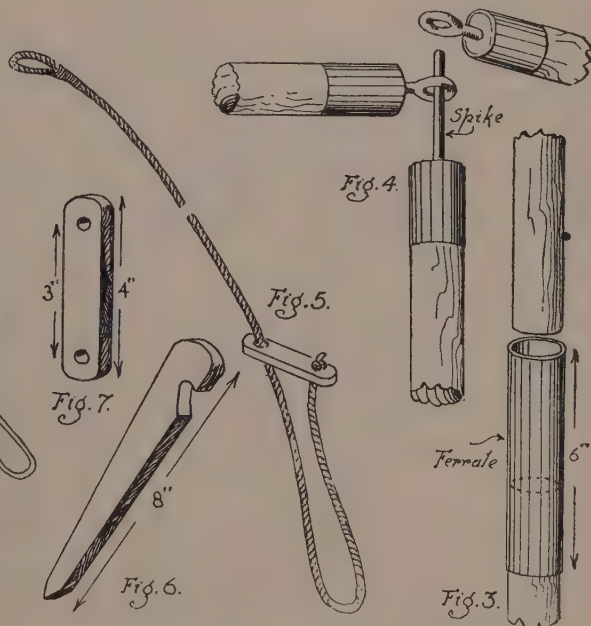


FIG. 2.—SKETCH ELEVATION.



FIGS. 3 TO 7.—DETAILS OF CONSTRUCTION.

THE ERECTION OF A LEAN-TO GREENHOUSE

THIS article deals with the construction of a small portable lean-to greenhouse which may be extended as the occasion arises. Fig. 1 illustrates the structure described, the suggested size being 10 feet long by 6 ft. 6 in. wide, 4 ft. 9 in. high at front and 8 ft. 3 in. high at back. Fig. 2 gives an elevation of the four chief frames which are constructed to the appended dimensions.

THE SIDE AND END FRAMES are constructed of two posts each, a top and bottom rail of 3 in. by 2 in. red deal, these being half-lap jointed at the top and housed at the bottom, then securely nailed. A sill of similar material which has been "weathered" about $\frac{1}{2}$ in. on the top surface is placed at a height of 2 ft. 6 in. from the bottom rail and has intermediate supports or studs of 2 in. by 2 in. material placed flush with backside of the 3 in. by 2 in. framing. This allows a 1 in. margin at the front side in which to nail the $\frac{7}{8}$ in. rebated weather-boarding (see Fig. 3). The studs are merely housed into the bottom rail and underneath side of the sill about $\frac{1}{2}$ in. deep and subsequently nailed in position.

The space above the sill is prepared for glazing by arranging a number of moulded and rebated glass bars which may be obtained ready made. These are tenoned about 1 in. deep into the top rail and sill of each frame as shown by dotted lines in Fig. 3.

THE FRONT FRAME is provided with a ventilator by placing two studs between the head and sill at a distance of about 2 feet apart. A separate frame or casement is then made from ready-run sash stile material to fit the opening, and is arranged to open outwards by hinging to the top rail and propped open at the sill by means of a casement stay. A rebate for this casement and the door in the end frame is formed by nailing some staff bead or other similar fillet round the opening.

After the frames for the two ends and front have been constructed they may be bolted together at the front corners with three $\frac{3}{8}$ in. bolts as indicated in Fig. 4, the front frame fitting between the two end frames. These latter frames are secured to the wall at the back side by means

of holdfasts or nails driven into plugs in the wall. The former method is probably best to facilitate easy removal of the frames in the event of extensions or permanent removal.

THE ROOF FRAME is made as shown in Figs. 2 and 5, and as this is rather a large frame and required to carry a heavy weight of glass it will necessarily have to be constructed of heavier material. The two stiles and top rail are of

4 $\frac{1}{2}$ in. by 2 in. good quality red deal, while the bottom rail is of 7 in. by 1 $\frac{1}{2}$ in. material, these pieces being joined together by means of haunched mortise and tenon joints as indicated in Fig. 5. The joints should be well painted before finally wedging up.

The inside edges of the stiles are rebated $\frac{3}{4}$ in. deep by $\frac{3}{4}$ in. wide like the intermediate bars to receive glass, while the top rail is grooved to the same dimensions instead of being rebated.

The wide bottom rail is $\frac{3}{4}$ in. thinner

than the remaining parts of the frame, which allows the glass to pass over its upper surface and thereby permits the rain to run clear of the woodwork.

A ventilator similar to that in the front frame may be arranged near the top rail, and can be made water-tight by making it a little larger than the opening, so that it may rest on top of the frame instead of inside a rebate.

The roof frame is made large enough to overhang the front and ends of the greenhouse about 2 in. and is secured by means of angle irons screwed on the inside. The top edge of the top rail of the roof frame will have to be bevelled off to suit the pitch of the roof so that a good joint is effected to the wall; and, as shown in Fig. 4, a piece of material about 4 in. by 2 in. is plugged to the wall between the end frames to support the top rail of the roof frame.

The joint between the wall and the frame is made weather-tight by a lead or zinc flashing, which is fastened to the wall by chiselling out the mortar joint immediately above and is held by lead plugs and cement. The flashing then comes down and covers the joint by bending on to the upper surface of the top rail of the frame; this being well bossed down requires no nailing.

DOOR.—A 1 $\frac{1}{2}$ in. thick glass door may be hinged



FIG. 1.—LEAN-TO GREENHOUSE. SIZE, 10 FT. BY 6 FT. 6 IN. HEIGHT AT BACK, 8 FT. 3 IN. HEIGHT AT FRONT, 4 FT. 9 IN. (ALL SIZES MAY BE ADAPTED).

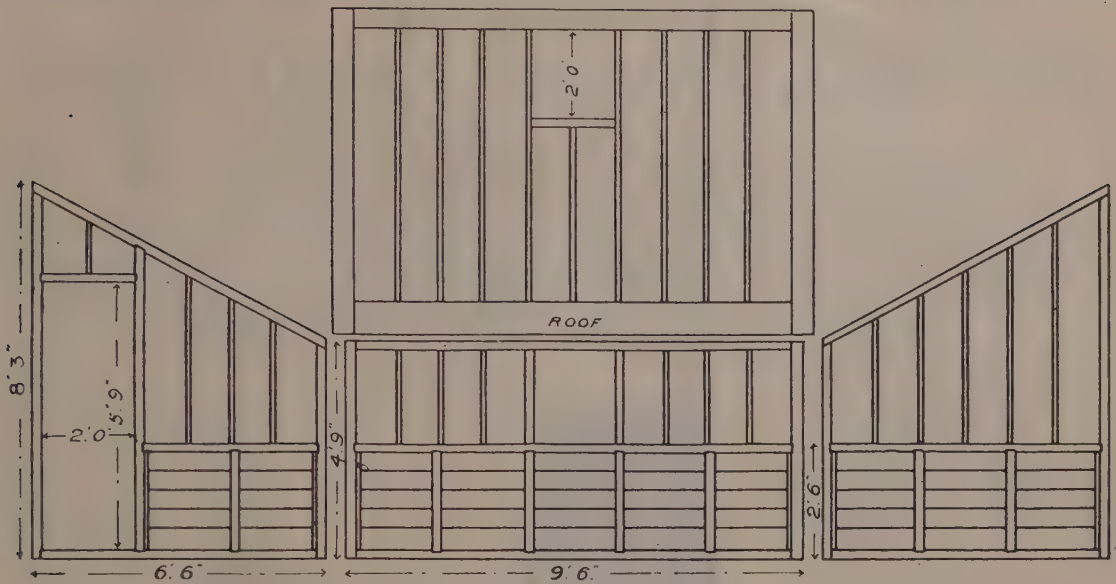


FIG. 2.—DOOR FRAME, FRONT FRAME, END FRAME AND ROOF FRAME, WITH SIZES.

to the post near the wall on the end frame to open inwards. Care should be taken when constructing the door to keep the glass line level with that in the end frame.

It is advisable to place a structure of this nature on a brickwork footing, which is made by first

levelling the ground and then laying two courses of bricks to suit the plan of the greenhouse. This precaution becomes almost necessary to prevent breakage of glass owing to settlement.

All the woodwork with the exception of the weather-boarding should be painted white. (314)

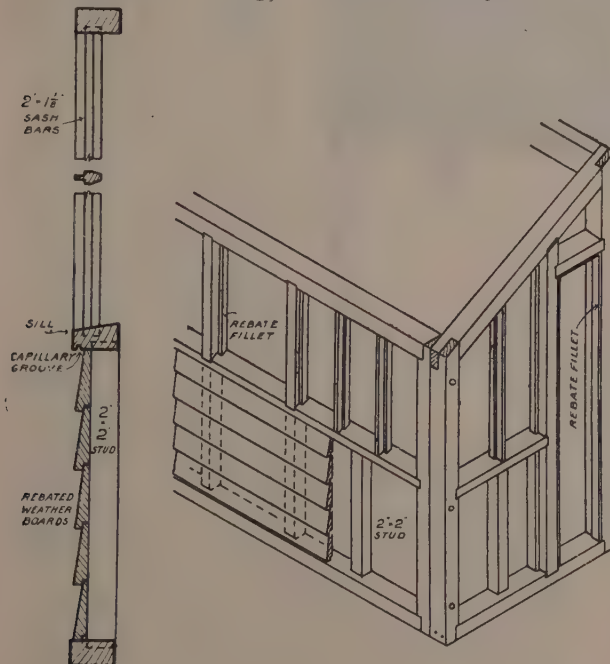
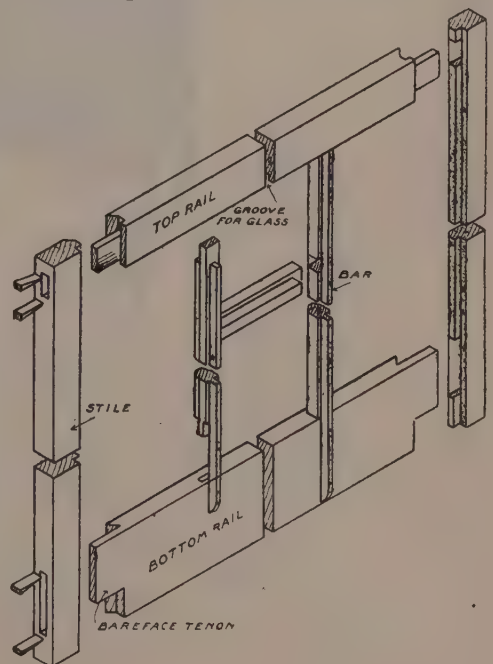
FIG. 3.—
VERTICAL
SECTION.

FIG. 4.—GENERAL CONSTRUCTION. FIG. 5.—DETAIL OF ROOF FRAME CONSTRUCTION.

LIGHT 3-FOOT BEDROOM SUITE

2.—THE DRESSING TABLE

An interesting Cabinet work task for the Summer months. The Wardrobe Design was given last month and the combined Tallboy Dressing Cabinet and Chest is ready for September.

THIS, the second piece in our suite, strikes an original note in the use of the broken top in place of the more common flat type. Advantage is taken of the side pieces to incorporate two useful small drawers in which collars, ties and so on can be kept. They should prove considerably more useful than the still smaller jewel drawers. Those who so desire can arrange to have two full-length drawers beneath, although for general purposes the upper half length drawers should turn out the more convenient.

Chief sizes are given in Fig. 2, whilst Fig. 6 shows how the carcass is put together. The first point to notice is that the ends run right up to the top of the small drawers. Another outstanding feature is that the top proper passes under these drawers and is fixed to the ends. The inner sides and the tops of the top drawer boxes are built on to these parts. Apart from these rather unusual features the construction is little different from that of the usual form of dressing table. As mentioned last month, the style is sufficiently indeterminate for it to be carried out in any hardwood.

THE LEGS.—Cut off the four legs to length. They are made from $1\frac{1}{2}$ in. squares and finish about $1\frac{1}{8}$ in. in section. Cramp them together and square across them the positions of the various rails. These marks are made on the inner

faces. As the ends finish at the bottom level with bottom rails, the lowest marks can be squared round on to the adjacent faces. Notice that of the four joints at the front three of them are mortises. These only need be marked out and cut, because the top dovetails are cut after the ends have been assembled. The same applies to the back, but instead of the two lower tenoned rails a grooved-in back is provided. This is shown clearly in Fig. 3. The object of not cutting the dovetails until later is that auxiliary dovetails are cut in the rails to fit into the ends. It is simpler to cut these and the main dovetails together.

The grain of the ends runs vertically. When preparing them remember to allow sufficient width for the tongues. Shoulders need be worked at the outer surface only. Fig. 6 shows how grooves are worked level with the mortises in the legs to hold the top and the runners. A rebate at the bottom edge also is necessary to take the bottom runners. When all joints have been cut the ends can be glued up independently.

THE MAIN TOP.—It is advisable to cut out the main top next. Tenons are provided at both back and front to fit into the legs. The centre part is squared and fits into the groove. When marking the shoulders of the tenons it is a good plan to mark out those of the lower rails at the same time. The parts can be cramped together temporarily and chisel marks squared across the whole. The position of the centre drawer division can also be marked. As shown in Fig. 6, the inner sides of the top drawer boxes are fixed to the main top with bare-faced dovetail joints. These joints should be cut across the top at this stage. They are stopped at the front about $\frac{1}{4}$ in. Those who do not care to tackle the dovetail joint can cut a plain groove. Another still simpler alternative is to dowel the parts together. The back is tongued similarly to the ends, but the grain is horizontal. It is screwed beneath the top, but these screws need not be

put in until after the whole has been put together.

Take special care when cutting the dovetails of the short top rails to arrange the shoulder length so that the inner sides of the box are perfectly upright. This is best done by taking the measurement from the main top. These parts are the last to be added when the whole is being assembled. Test carefully for squareness before putting aside for the glue to set. The most reliable test is to use a lath of wood sharpened at one end. This is laid diagonally across the job and the length marked. The same length should be shown when the lath is reversed.

There is no need to enter into the fixing of the



FIG. 1.— DRESSING TABLE OF LIGHT OAK SUITE. WIDTH, 3 FEET. SIZE OF MIRROR, 21 IN. BY 15 IN.

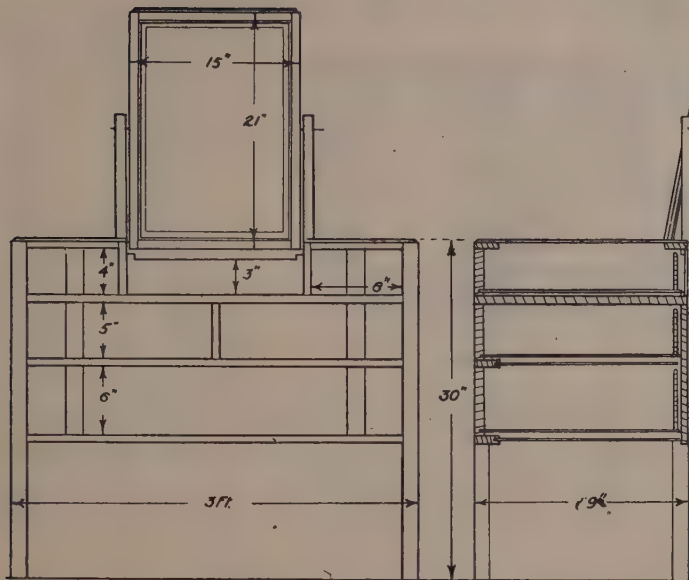


FIG. 2.—ELEVATION AND END SECTION WITH PRINCIPAL SIZES.

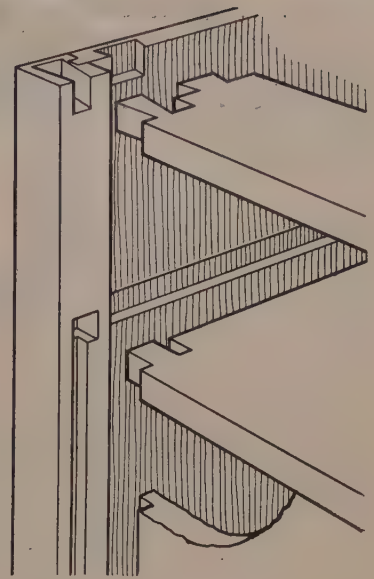


FIG. 3.—DETAIL OF BACK JOINTS.

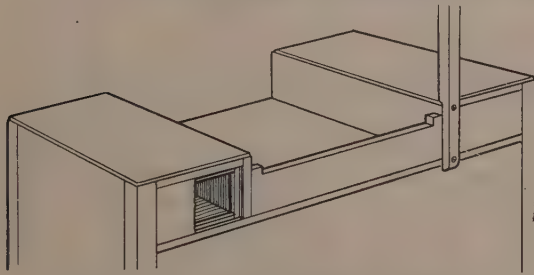


FIG. 4.—PART VIEW OF TABLE FROM BACK.

runners and dustboards, as this does not vary from general practice. They should be glued at the front only so that they do not rigidly grip the ends. Otherwise they might cause the ends to split in the event of shrinkage. The small tops are of $\frac{1}{8}$ in. or $\frac{1}{4}$ in. stuff glued and pinned.

There is no danger of their splitting because the grain of all the parts runs parallel with the front. Fig. 4 shows how backs to the top drawer boxes are fixed. Small fillets are glued and pinned round inside and the backs pinned to these. The edging between the boxes is fixed with screws driven upwards through the top and sideways through the inner box sides. Shallow channels are cut across the drawer front as described for the wardrobe. They should be about $1\frac{1}{4}$ in. wide by about $\frac{1}{8}$ in. deep.



FIG. 5.—SECTION OF MIRROR FRAME.

POSTS AND MIRROR FRAME.—Fig. 4 shows how the posts are fixed. A notch is cut at the bottom

of each. The notch should be long enough to allow a lower screw to be driven into the top. The mirror fits in a plain rebated frame with a thumb moulding at the front edge. It is tenoned together and a thin finishing mould applied at the top as given in Fig. 5. To fix the mirror, lay the frame face downwards on the table, insert the mirror and glue round a series of small wedges

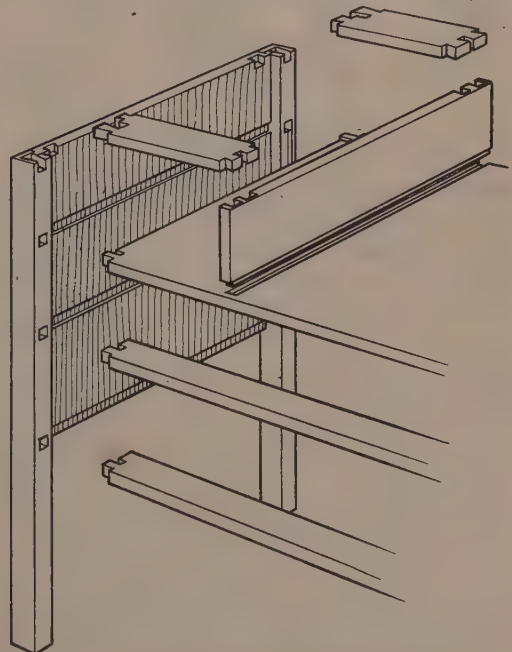


FIG. 6.—DETAIL OF CARCASE CONSTRUCTION.

as shown. They are glued to the rebate only. When the glue has set a thin backing of plywood is pinned or screwed on. When making the frame remember to allow sufficient clearance between it and the posts for the metal movements. It is advisable to obtain these first so that they can be measured.

CUTTING LIST:—

	Long. ft. ins.	Wide. ins.	Thick. ins.
4 legs	2 6	1½	1½
2 ends	1 6½	17½	¾
1 back	2 10½	12½	¾
1 top	2 11½	19½	¾
2 rails	2 11½	2½	¾
4 rails	0 10	2½	¾
1 division	0 7	2½	¾
2 inner ends	0 5½	19½	¾
1 edging	1 4	3½	¾
2 back panels	0 8½	4½	ply.
2 tops	0 10½	19	1½
5 runners	1 5	2½	¾

	Long. ft. ins.	Wide. ins.	Thick. ins.
1 dustboard	2 8	16	ply.
2 dustboards	1 3	16	ply.
2 fronts	0 8½	4½	¾
2 fronts	1 4½	5½	¾
1 front	2 9½	6½	¾
4 sides	1 6	4½	¾
4 sides	1 6	5½	¾
2 sides	1 6	6½	¾
2 backs	0 8½	4	¾
2 backs	1 4½	5	¾
1 back	2 9½	6	¾
2 bottoms	0 7½	18	ply.
2 bottoms	1 3½	18	ply.
1 bottom	*2 9	18	ply.
2 posts	1 6	1	1
2 stiles	1 9½	1½	1
2 rails	1 3	1½	1
1 back	1 8½	14½	ply.

*May have centre muntin if desired.

(324)

HOUSEMAID'S BOX AND STEP

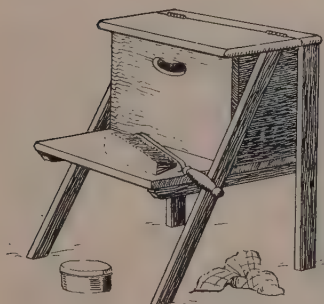


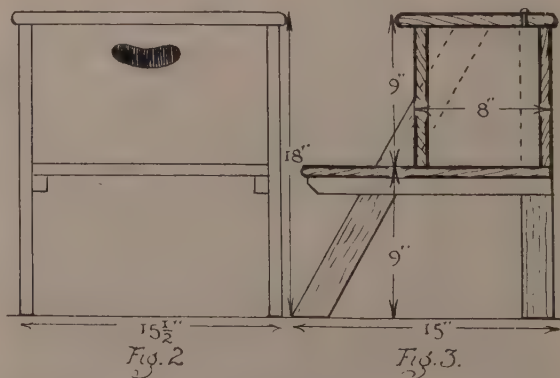
FIG. 1.—HOUSEMAID'S BOX AND STEP.

THIS useful domestic article may be made from a few odds and ends of wood, and will be appreciated by the busy housewife or maid because it combines a box, in

which polish, polishers, brushes, etc. may be kept, with a step just high enough to enable the ordinary work to be reached. The box and step are sketched at Fig. 1, and shown in elevation and section at Figs. 2 and 3. If possible, wood of ¾ in. thickness should be used.

THE BOX is made with a front and back 1 ft. 2 in. long by 8 in. wide, and two ends 6½ in. long by 8 in. wide. A hand-hole is cut in the front, and the front and back are nailed or screwed to the ends. The bottom is 1 ft. 2 in. long by 1 ft. 3 in. wide, nailed under the front, back and ends, and strengthened with two battens 1 ft. 3 in. long by 1 in. deep nailed across at the ends. Two pieces should be used for the cover, the back piece being 1 ft. 4 in. long by 2 in. wide nailed in place, and the front piece 1 ft. 4 in. long by 7 in. wide hinged to the back. The back legs are 1 ft. 5½ in. long by 1½ in. wide, and the front legs are 1 ft. 9 in. long by 2 in. wide, nailed or screwed to the ends of the box in the positions shown at Fig. 3. (326)

"WOODWORK JOINTS"—one of the most useful handbooks ever written—has been completely revised and brought up to date. The great majority of its four hundred diagrams have been replaced by new illustrations. Indeed, no handbook of the kind includes such a variety of illustrations of joints. The text has been carefully revised, minor or unimportant details being omitted and new directions added. The chapters cover glued joints, halved joints, bridle joints, tongued and grooved joints, mortise and tenon joints, dowelled joints, scarf joints, hinged joints, shutting joints, dovetail joints, dovetail grooving, mitred joints, joints for curved work, miscellaneous joints and puzzle joints. A full index is added. Price 3/6 net. Evans Bros., Ltd., Montague House, Russell Square, London, W.C.1.



ELEVATION AND SECTION OF HOUSEMAID'S BOX.

HALL RACK AND MIRROR

THE hall rack sketched at Fig. 1 is designed on modern lines, the over all sizes being length 3 ft. 4 in., height 1 ft. 6 in. It is intended to be made in $\frac{3}{4}$ in. oak. The back is framed, a mirror fitted to the centre opening, and a shelf running the full length is supported by four shaped brackets. The edges of the back frame and the shelf are ornamented with embossed and turned moulding, and four hat and coat hooks are fitted.

THE BACK is framed as shown at Fig. 2, the top rail being 2 ft. 10 in. long by $2\frac{1}{4}$ in. wide; bottom rail, 3 ft. long by 3 in. wide; end stiles, 1 ft. 6 in. long by 3 in. wide, and mirror stiles 1 ft. 4 in. long by $2\frac{1}{4}$ in. wide. The top rail is dovetail lapped and screwed to the stiles; the bottom rail is fixed with ordinary lapped joints,

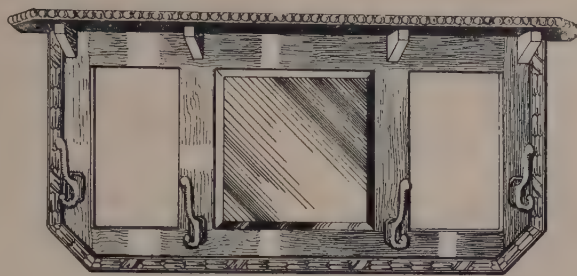
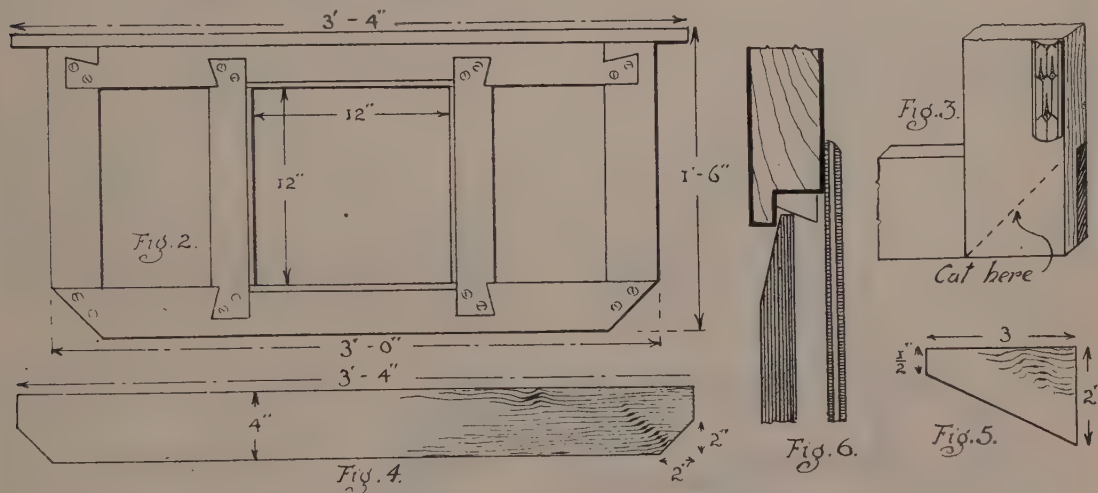


FIG. 1. HALL RACK, 3 FT. 4 INS. BY 18 INS.

brackets are shaped as at Fig. 5, and are glued and pinned in place.

Strips of embossed moulding, $\frac{1}{4}$ in. wide, are fixed around the outer edges of the frame, and strips of turned half-round moulding, $\frac{1}{8}$ in. wide, are fixed around the edges of the shelf. The mirror is fixed in the rebates with small angular blocks, and a piece of plywood is screwed to the back (Fig. 6).

(325)



FIGS. 2 TO 6.—ELEVATION OF FRAMEWORK, PLAN OF TOP, SECTION AND DETAILS.

PADOUK is a timber from the Andamans that is imported into this country in irregularly received parcels. The timber arrives in squared logs of generally large dimensions, many retaching thirty-six inches in diameter, and the wood is distinguished by its showy and handsome appearance, being of a rich brilliant red, streaked with a darker colour. It is moderately hard, heavy, and durable, shrinks very little, but is not always of a very workable character; and moreover it loses much of its brilliant and attractive colour on exposure or in the process of polishing. Whether ascribable to these two latter defects or other causes, the wood has not made much headway in the favour of consumers in this country,

but has found more appreciation in America, to which country much of the wood sent here has been transhipped. Its showy character appeals perhaps to the American tastes, as it has been largely used in fittings for railway carriage work, especially in their pullman cars.

REMEMBER that we are now well into the Summer season. To avoid disappointment in regular delivery, readers are urged to have a definite order for THE WOODWORKER placed with their newsagent. Back numbers can usually be had (price 7d. post free) on application to the publishers: Evans Bros., Ltd., Montague House, Russell Square, W.C.1.

OUTDOOR WOODWORK JOINTS

2.—SIMPLE GARAGE OR SHED FRAMING

ONE fact not generally recognised by the prospective owner-driver is that practically any make of car can be comfortably driven through an opening six feet wide. The result is that many home workers have a tendency to build their temporary wooden garages much larger than is really necessary.

The shed or garage of which the general particulars are given here had to be erected as cheaply as possible. It has successfully withstood the wear and tear of six years of mixed weather, and at the moment it appears to be in excellent condition.

Garages must necessarily vary in size according to the car which they have to accommodate and according to the ground space at the disposal of the owner; therefore the first thing to decide upon is the length and width. When considering this the prospective maker should take into account the length of the sheets of corrugated galvanised sheeting with which the top is to be covered and should arrange the width of the garage accordingly. At Fig. 1 it will be observed that a garage 10 ft. wide will (on its roof) use up galvanised sheets which measure 6 ft. in length, and if the garage or shed is desired either wider or narrower, it is quite a simple matter to draw a single line scale diagram as at Fig. 1.

Corrugated galvanised sheets are made in stock lengths which rise by 12 inches—say, 5 ft., 6 ft., 7 ft., and 8 ft.; but if specially ordered they can be obtained 5 ft. 6 in., 6 ft. 6 ins., 7 ft. 6 in. and 8 ft. 6 in., or of greater length. The sheets should lap on to each other at least two corrugations, and the ridge or apex is covered with a specially made ridge obtainable from the same source as the sheets; or it may have a leaded roll.

FRAMES.—Having decided on the length and the width of the proposed structure the worker

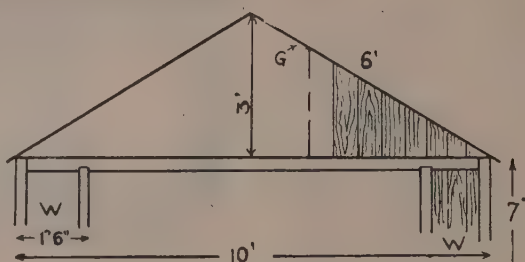


FIG. 1.—SINGLE-LINE LAY-OUT, SHOWING HOW TO FIND ROOF PITCH TO TAKE 6 FT. GALVANISED CORRUGATED SHEETS.

proceeds to make two side frames and a back and a front frame, as at Fig. 2. Practically the whole of the timbers used are 4 in. by 3 in. with the exceptions noted. The joints are of the simplest character and are notched and nailed together with wrought nails as at Fig. 3.

The front frame is built in a rather different manner so as to allow for nailing the $\frac{3}{4}$ in. match-boarding on the wings at each side of the door opening (see W, Fig. 1), and to allow for carrying the ironwork of the door runners.

When the four frames are completed they are bolted together with nuts and bolts (A, Fig. 3), and this will enable the maker to remove the shed at any future time. Four odd blocks of wood (X) will require to be nailed on the top ends of the interior uprights so as to give additional support to the foot ends of the roof trusses (Figs. 2 and 5). The projecting lower ends of the uprights should run to earth and should stand on a couple of bricks so arranged that the lower edge of the horizontal rails are one inch above the earth.

The floor is formed by broken brickbats and concrete and is faced up with granite chippings and concrete to a reasonably smooth surface.

A window at each side of the shed will be required, and if suitable rebated strips of greenhouse stuff be obtained the frames may be made and nailed on to the window openings.

ROOF.—After fixing up the framework (Fig. 2), make two end roof trusses as at Fig. 4; nail one on the front of the shed and the other at the back as indicated. Bear in mind that the length L, Fig. 4, must be at least 4 ins. shorter than the length of the stock galvanised sheeting that you are to use for the roof, otherwise you will have no overhang at the eaves (refer to Fig. 1).

The sloping blades of the truss

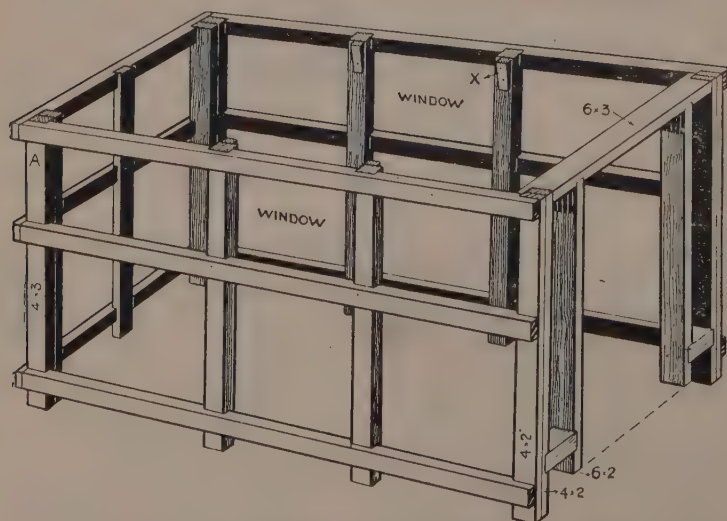


FIG. 2.—THE FOUR SEPARATE FRAMES BOLTED TOGETHER, TO BE COVERED WITH CORRUGATED SHEETS 7 FEET LONG.

(B) are of 3 in. by 2 in. clean spruce or white deal and the tie piece T, Fig. 4, is 4 ins. wide and 1½ in. thick. The ends of both the front and back trusses are boarded up with ¾ in. white matchboarding. The entire shed end under this matchboarding is filled up by nailing on to the framework corrugated galvanised sheets which measure 7 feet long, and each sheet is lapped over two corrugations to make them watertight.

The two interior trusses which are nailed to their respective uprights having the supporting blocks are made as at Fig. 5, the blades (B) being of 3 in. by 2 in. stuff and the struts (S) of 4 in. by 1½ in. No central ridge is used on this shed because the purlin pieces (P, Fig. 5) are nailed on to the trusses as shown and they will therefore form accommodation for the nailing of the galvanised sheets near the apex. G at Fig. 5 and Fig. 1 denotes edge of roof sheeting.

The wings or panels at the side of the doorway (W, W, Fig. 1) are completed by nailing on to them ¾ in. matchboarding, and the whole of the sides and back end (with the exception of the windows) are covered with 7 ft. galvanised sheets. The worker can, if he so desires, use matchboard-

ing instead of the galvanised sheets.

THE DOORS of the 10 ft. garage consist of three leaves or separate doors made out of ¾ in. matchboarding which is battened and supported by diagonal braces as shown on page 209 (July). These simple doors are hinged together and are supported by the Coburn system of sliding door gear, which consists of trolleys at the top and a guide channel at the bottom. By using this system of sliding gear any number of doors can be used, provided each door is not more than 3 ft. wide, and the end door may be arranged as a service door for entrance or exit.

At Fig. 6 we give a sketch of a four-leaved framed and panelled door arrangement which can be pushed open so as to send one leaf going around the radius of the track running along the side of the garage. It must be remembered that battened doors run equally as satisfactorily and that the doors may if necessary be *unequal in their width and unequal in thickness*. Full particulars of the fittings and gear can be obtained from any ironmonger or direct from The British Trolley Track Co., Ltd., Coburn Works, Orange Street, London, S.E.1. (328)

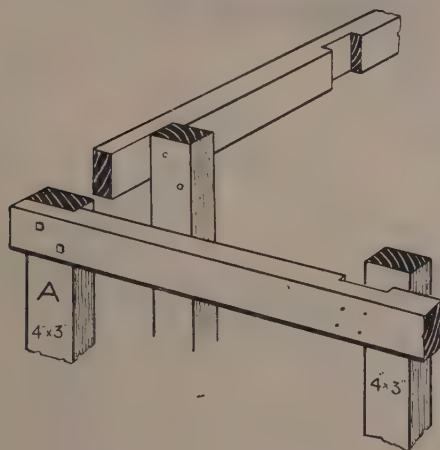


FIG. 3.—DETAIL OF FRAMING (SEE ALSO CORNER A IN FIG. 2).

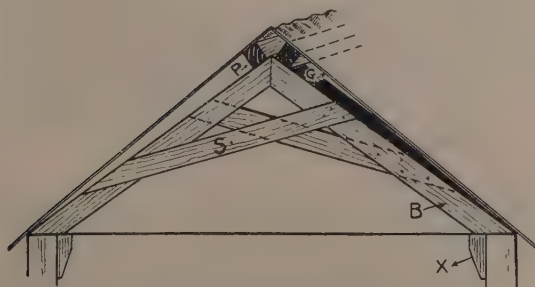


FIG. 5.—CENTRE TRUSSES WITH PURLINS (P) TO CARRY THE ROOF SHEETS.

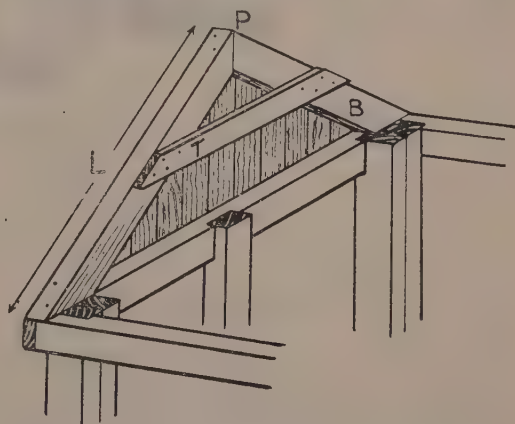


FIG. 4.—HOW TO MAKE AND FIT END TRUSSES.

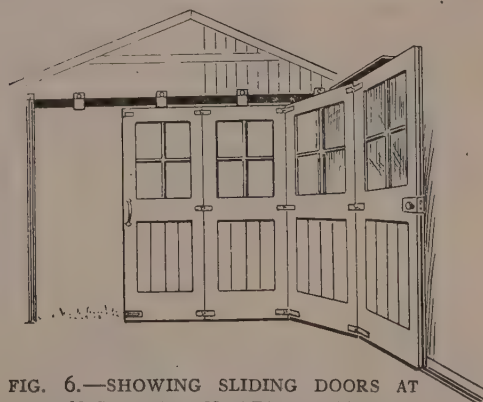


FIG. 6.—SHOWING SLIDING DOORS AT ENTRANCE, WITH ONE LEAF TO ACT AS A SERVICE DOOR WHEN OTHER LEAVES ARE CLOSED.

GARDEN SUMMER SHELTER

MORE and more we are beginning to realise the value of sunshine and the open air where our health and consequently our happiness are concerned. A delightful opportunity of getting out and spending happy hours in the air and sunshine without fatigue is provided by a summer or garden house, and that shown in our sketch (Fig. 1), besides providing this opportunity, also adds much to the beauty of a garden. It is especially suitable for a small garden because it occupies but little space and may be erected on a central or corner site. The design allows scope for individual ideas to be introduced. The sizes could be amended if necessary to meet almost any needs; horizontal, vertical, or any special ideas in panelling could be introduced; the roof could be weather boarded, or covered with zinc or felt as desired; and it may be mentioned here that there is a growing tendency to erect houses of this kind without any fixed seats, and introduce a couple of comfortable chairs in their place, with the addition of a small table.

Little need be said concerning the construction as the drawings are almost self-explanatory, the method of construction being clearly shown in the elevation (Fig. 2), section (Fig. 3) and plans (Figs. 4 and 5), and the details (Figs. 6 to 10). The bottom rails (A) are 4 in. wide by 3 in. thick, and the top rails (B) are 4 in. wide by 2 in. thick, half-lapped and screwed together at the corners, as at Fig. 6. To obtain the correct bevel and dimensions it will be desirable to set out a half or full plan of the house (see Fig. 4) to an enlarged scale, or better still full-size. The uprights (C) are 2½ in. square, and are tenoned through the half-lapped ends of the top and

bottom rails, as is also shown at Fig. 6. Three sides of the house are fully panelled; two sides are panelled about 3 ft. high, the ledges (D) being framed between the uprights, and the front is left open. The ledges are 4 in. wide by 1½ in. thick, notched about ½ in. into the uprights and nailed, as at Fig. 7. As before mentioned, the panelling, which should be of ¾ in. matching, may be fixed vertically, horizontally or diagonally, fillets about ¼ in. thick being nailed to the top and bottom rails and uprights to form the rebates, as at Fig. 8. If vertical panelling is introduced, that at each side of the doorway may be made effective by cutting every other board short to form openings under the ledges, the boards being held together by nailing small slips on the inside.

If a seat is fitted it could be arranged as at Fig. 4, the boards being about 16 in. wide by 1 in. thick. Bearers (E) should be fixed across the uprights to support the boards (see Fig. 3); the back boards

should run right across and rest on the bearers, and battens are screwed under the joints between the back and end boards.

The roof is framed with six rafters (F), 3 in. deep by 2 in. wide, tenoned into a turned finial (G), 1 ft. 9 in. by 4½ in. (see Fig. 9), and jointed over the top framing rails (Fig. 10). A weather board covering looks very effective, but if preferred the roof may be boarded with ¾ in. matching and covered with zinc or felt, slips being nailed over the joints.

The house should be set on a concrete foundation which should be brought up level with the bottom framing rails on the inside, or if desired a wood floor could be fitted, the boards being 1 in. thick resting on the bottom rails and supported in the middle with a couple of small joists. (322)

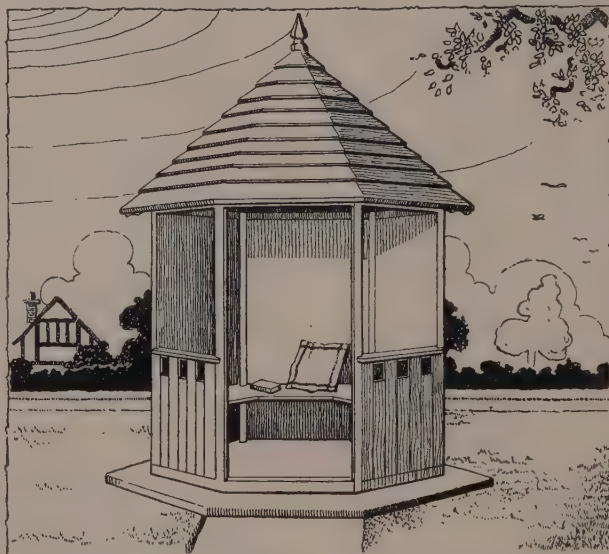
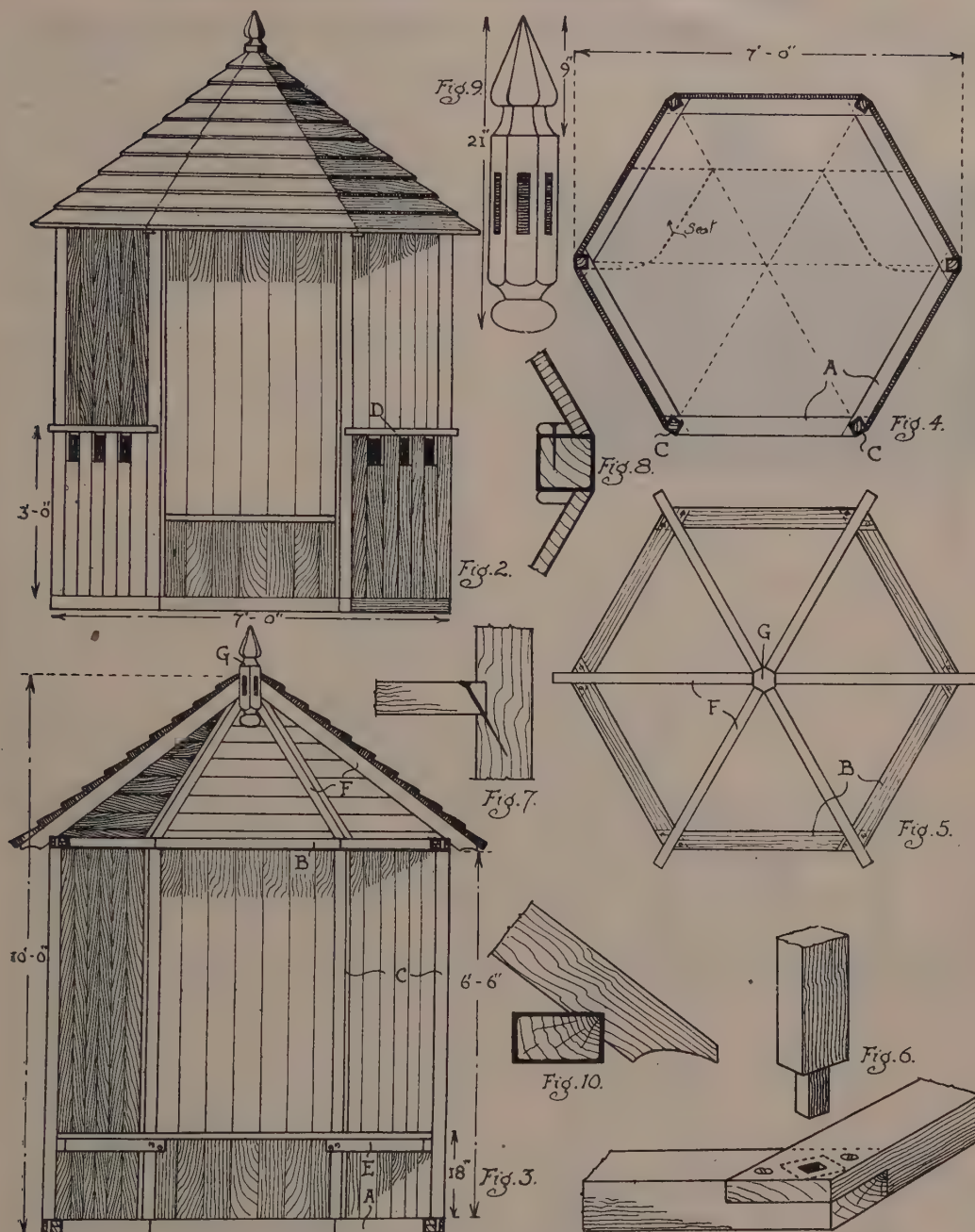


FIG. 1.—GARDEN SHELTER: 7 FT. WIDE; 10 FT. HIGH.
(SEE DETAIL ILLUSTRATION ON NEXT PAGE).

TUPELO.—This is a semi-aquatic tree, which grows to a large size in the swampy regions of several of the States of Southern America. The wood is of a greyish white colour, rather more weighty than whitewood, and is clean and straight grained in its character. Casual shipments have reached these markets during the last ten or twenty years, but the produce has not

been greatly appreciated, although the price has been low. There is said to be a great difficulty in seasoning the wood, and that it twists and warps to a considerable degree. Its chief use has been in the production of picture frames, electric casing and other mouldings, its straight, clean growth and freedom from defects being qualities that eminently fit it for such a purpose.



FIGS. 2 TO 10.—ELEVATIONS, PLANS, SECTIONS AND DETAILS.

"CABINET CONSTRUCTION" deals specifically with the separate and distinct detail parts which go to make up pieces of ordinary furniture. The contents comprise joints in carcass work, cabinet and table tops, table and chair legs, cabinet doors (including barred doors and leaded lights), drawer making (including rails and runners),

cornices, cappings and shapings, facing, etc., the rule joint, cabinet backs, veneering, inlaid bands and stringings, working mouldings by hand, setting-out boards, metal fittings, and examples of period furniture details and metalwork. (Price 3/6 net). Evans Bros. Ltd., Montague House, Russell Square, W.C.1.

A BUNGALOW SIDEBOARD

SPACIOUS IN ACCOMMODATION AND COMPACT IN CONSTRUCTION



THE small sideboard here illustrated should be well within the capability of the home woodworker. The simplicity and considered proportions of the design give it a neat and attractive appearance appropriate to the small dining room of bungalow or flat. Two sizes are given: 3 ft. 6 in. for a small room, and 4 ft. for those who prefer a more commodious article. The exterior wood should be carefully selected for figure. While the design suggests oak, one of the Empire timbers could be used advantageously.

THE LEGS (A) are prepared from 2 in squares, finishing about $1\frac{1}{2}$ in. Pair them and work grooves to receive the ends (K). Rebate the back legs for the carcase back (T). The finish to the legs at the top can be done with the saw or applied as separate finials.

To secure the width for the ends, top and bottom, it will be necessary to joint two boards, the joints being tongued or dowelled. The edges should be true and parallel and all cross cut to the net lengths given. Place the ends together to ensure their being equal in length. When working the tongues for the legs see that the ends (K) are set in from the face of leg. The top edges of the ends are rounded and

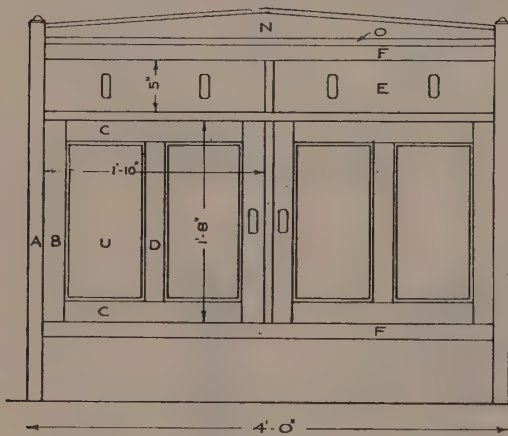


FIG. 1.—ELEVATION OF 4 FT. SIDEBOARD.

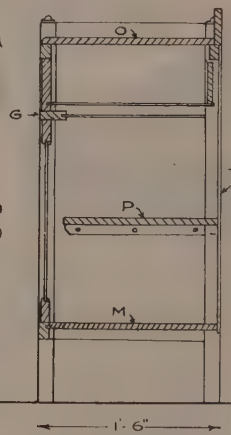


FIG. 2.—SECTIONAL VIEW.

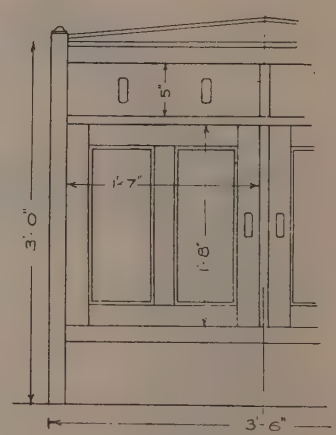


FIG. 3.—3 FT. 6 IN. SIDEBOARD.

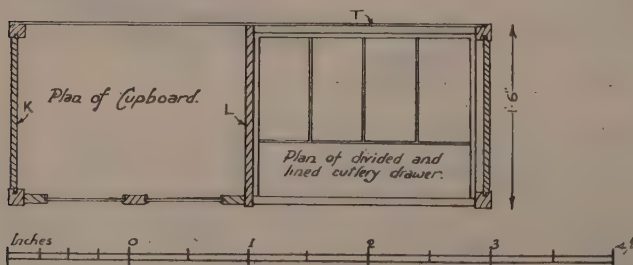


FIG. 4.—HALF PLANS OF CUPBOARD AND CUTLERY DRAWER.

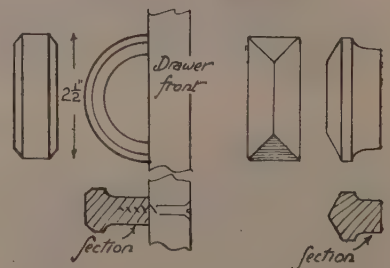


FIG. 5.—TYPES OF WOOD KNOBS.

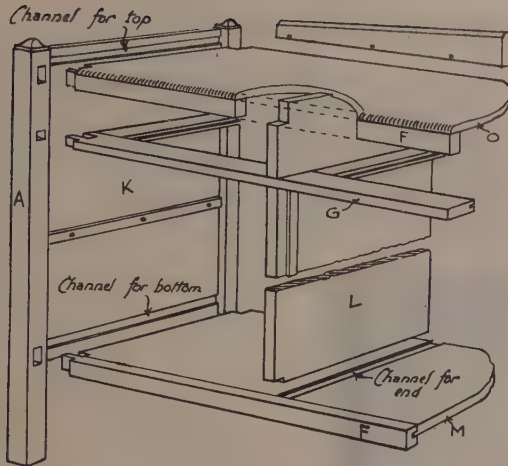


FIG. 6.—METHOD OF CONSTRUCTION.

channels are cut across for the top and bottom before glueing to the legs.

When the ends and the legs are glued together and set, pair them and strike off the position of the rails (F and G); carry the lines round and sink the mortises. The top and bottom should now be channelled $\frac{1}{4}$ in. deep across for the centre end (L). This end is notched to take the drawer rail (G), which runs the full width of the front and is tenoned to the legs. If dustboards are to be fitted the inside edge of the rail (G) should be grooved. The bottom (M) and bottom rail (F) are also tongued and grooved together, this being done after the rail is tenoned. The bottom is notched round the legs as in the case of the top (O).

IN THE FINAL ASSEMBLY first glue the centre end into its grooves in the top and bottom, fit the rail (G) and complete by glueing rails (F and G) and the top and bottom to the ends and well cramping up together. It would be advisable to get the whole up together dry in order to test the work before using glue. The ledge (N) is shaped and moulded and is fixed by screwing to the top from the back (Fig. 7). An occasional glance at Fig. 6 will make these constructional remarks quite clear. It should be noted that the front edge of the top is rounded, and a little decorative moulding might be applied to the top rail (Fig. 1), the rail being rebated to receive it. All sharp edges should be softened.

DOORS.—The timber selected for the frames should be dry and straight in grain. In preparation allow $\frac{1}{8}$ in. on the width of the stiles and rails for fitting. Stiles and rails are each rebated and moulded through on the inside edge, the muntins (D) being worked on two edges. The frames are mortised and tenoned together, the muntins being only stub tenoned, and the the moulding mitred at the corners (Fig. 8). The panels should be of nicely figured wood and are beaded in after staining the edges.

THE DRAWERS are made up in the usual way,

the sides lap dovetailed to the fronts and through dovetailed to the backs. The drawer bottoms can be run in grooves worked in the sides. It is suggested that the right hand drawer be divided and lined for cutlery as in Fig. 4. The drawer runners (H and J) are screwed to the ends, being grooved for dustboards if these are being fitted. Guides and kickers will be required when fitting the drawers. A shelf on bearers, full depth in one cupboard and half the depth in the other will complete the work after the carcass back is fixed.

HANDLES may be in wood or metal. Wood handles are shown in Fig. 5. If metal is preferred choose a simple modern design.

FINISH. Limed oak is popular and the sideboard would look well if treated in this manner. If the traditional dark oak colour is preferred then stain a rich vandyke brown and wax polish.

THE CUTTING LIST is as follows:—

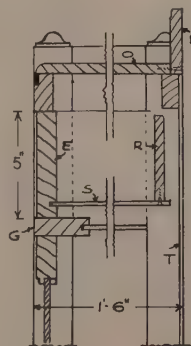
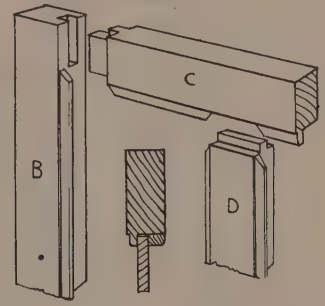
	For 4 ft. size.	Long. ft.	Wide. ins.	Thick ins.
A Four legs	... 3	1 $\frac{1}{2}$	1 $\frac{1}{8}$	1 $\frac{1}{8}$
B Four door stiles	... 1	8	2 $\frac{1}{2}$	$\frac{7}{8}$
C Four door rails	... 1	8	2 $\frac{1}{2}$	$\frac{7}{8}$
D Two door muntins	... 1	4 $\frac{1}{2}$	2 $\frac{1}{2}$	$\frac{7}{8}$
E Two drawer fronts	... 1	10	5 $\frac{1}{2}$	$\frac{7}{8}$
F Three rails	... 3	10 $\frac{1}{2}$	1 $\frac{1}{2}$	$\frac{7}{8}$
G One drawer rail	... 3	11	2 $\frac{1}{2}$	$\frac{7}{8}$
H Two drawer runners	... 1	3 $\frac{1}{2}$	2	$\frac{7}{8}$
J Two ditto	... 1	3 $\frac{1}{2}$	1 $\frac{1}{2}$	$\frac{7}{8}$
K Two ends	... 2	6 $\frac{1}{2}$	15 $\frac{1}{2}$	$\frac{7}{8}$
L One centre end	... 2	3 $\frac{1}{2}$	17 $\frac{1}{2}$	$\frac{7}{8}$
M One bottom	... 3	11	17 $\frac{1}{2}$	$\frac{7}{8}$
N One ledge	... 3	9 $\frac{1}{2}$	3 $\frac{1}{2}$	$\frac{7}{8}$
O One top	... 3	11	17 $\frac{1}{2}$	$\frac{1}{2}$
P One shelf	... 1	10	16	$\frac{1}{2}$
One ditto	... 1	10	8	$\frac{1}{2}$
Q Four drawer sides	... 1	4 $\frac{1}{2}$	5 $\frac{1}{2}$	$\frac{1}{8}$
R Two drawer backs	... 1	10	4	$\frac{1}{8}$
S Two drawer bottoms	... 1	9 $\frac{1}{2}$	16 $\frac{1}{2}$	$\frac{1}{2}$
T One carcass back	... 3	10	28 $\frac{1}{2}$	$\frac{1}{2}$
U Four door panels	... 1	4	8	$\frac{1}{2}$

For 3 ft. 6 in. Size:—

Make F, G, M, N, O, and T 6 ins. shorter.

Make C, E, P, R and S 3 ins. shorter.

Make U $1\frac{1}{2}$ ins. narrower. Sizes are net. (241)

FIG. 7.—
SECTIONAL
DETAILS.FIG. 8.—DETAIL OF DOOR
JOINTS.

THE HANDICRAFT CENTRE

MUSIC CABINET WITH SLIDING TRAYS

OUR drawings illustrate a music cabinet which may be made by advanced students in an evening school. The construction is simple throughout, but calls for careful thought and accurate craftsmanship. The model is designed to be carried out in oak, and timber which is dry and of sound quality should be used.

The cabinet stands 3 feet high, with an over all width of 18 ins., and the model is designed to accommodate the largest quantity of sheet music within a limited space. There are no fixed shelves; drawers are also dispensed with, and, instead, the interior is fitted with simple plywood trays which, sliding in grooves, will be found exceedingly convenient for quick access to the music.

There is a clear space of 9½ ins. between the floor and the bottom rail, but (if desired) provision could easily be made for either one or two additional trays by lessening this space and increasing the length of the doors. Alternately, if provision were required for bound music, the lower part of the cabinet may be left for this and the number of trays restricted to, say, four.

CARCASE.—In the first place, complete the two sides; pair the legs, marking their length, the position of the mortises for the end rails (D) and for the runners. Cramp the end rails together, mark their length and shoulder lines across their edges. Take them apart and square the shoulder lines all around each rail. The runners are to be dealt with in a similar manner.

Set up a mortise gauge to a ¼ in. chisel and gauge for mortises on the legs and for tenons on the end rails (D). The mortise gauge should then be set for gauging mortises and tenons for the runners. When the mortises have been cut the legs may be grooved to take the plywood panels, but the rails should be grooved before the shoulders are cut. Fit each joint and number same, then cut the panels to size and fit into position. The runners should also be fitted into position and numbered. After fitting these, the runners should be ploughed to take the plywood trays, and the top rails ploughed on the

inside to take the buttons for holding the top.

Clean up the inside edges of the rails, legs, and runners, also the face of the panels, ready for glueing up. The ends should now be glued, well cramped up and placed away to set. Whilst this is taking place the front rails and back rails should be paired and marked out.

After glue has set take the ends and make the mortises for the front and back rails. Fit these rails into position and number each joint. The top rails should be ploughed to take buttons for fixing the top piece, and back rail (C) ploughed to take the plywood bottom. Groove the back legs and the back rails to take the plywood back, and cut the plywood to the required size. Clean up rails, etc.

Glue up carefully and fix a squaring piece across one corner to keep the work square whilst glue is setting. Cut the top to the required size, work the moulding and clean up ready for fixing. Make and fix the pieces for carrying the bottom to the bottom rails and cut the plywood to size.

DOORS.—First take the material for stiles, and mark the height of the doors on one piece. Pair the stiles (*i.e.*, place them so that the face sides of each pair of rails are together); grip them in a vice and mark the mortises on the edges. Mark the width of the doors and set out a rod. From this rod mark the shoulder length of rails, cramp them all together and mark the shoulder length across their edges. Take them apart and mark the shoulder lines all round each rail with a scribing knife. Set a mortise gauge up to a ¼ in. chisel and gauge for mortises on the stiles and for tenons on the rails. The mortises require cutting very carefully nearly three-quarters of the way through the wood.

Next cut the tenons, but do not cut the shoulders until the rails have been rebated. Gauge for rebates and cut them very carefully, working exactly to the gauge lines. The shoulders may now be cut and each rail fitted into its position. Clean up the inside edges and glue up each door.

Prepare the panels, clean them up thoroughly,



FIG. 1.—MUSIC CABINET WITH SLIDING TRAYS. HEIGHT, 3 FEET; WIDTH, 18 IN.

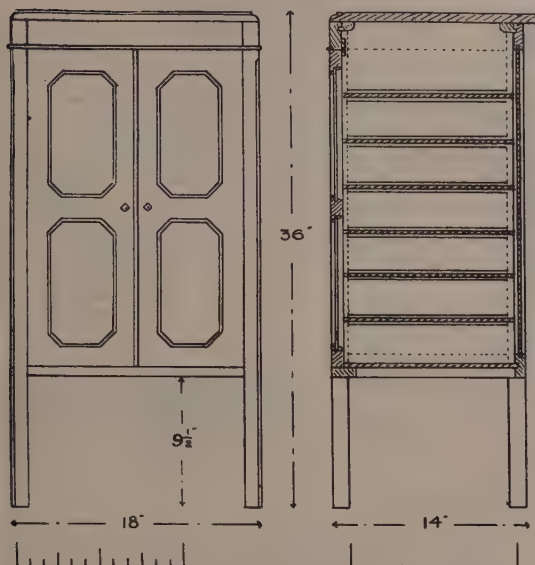


FIG. 2.—ELEVATION.

FIG. 3.—SECTION.

and make the beads for holding them in position. If the doors are made with the corners cut off as indicated, the extra pieces should be fitted very carefully and glued into position.

The doors should now be thoroughly cleaned off with smoothing plane, scraper, and glass-paper, and the panel moulding mitred into place. The moulding is fixed into position by means of five panel pins, the beads being punched in with a fine punch. The doors should now be rebated and then fitted into place. After the rebate has been cut plane the doors to the width of the cabinet, trim to length and fit them.

Fix the bottom of the cabinet into its place and remove the squaring piece. The carcase should now be thoroughly cleaned off and the top fixed into its place by buttons as shown. The front legs may either have a bead or chamfer worked on the outside corners. Should a chamfer be worked it may be stopped with simple tool cuts as shown in sketch. Fix the bead (H) by means of glue and fine pins.

The top rail (B) may be treated in two ways: (1) it may be kept flush with legs and then decorated with simple fluting as in Fig. 1, or left plain; or (2) it may be kept back $\frac{1}{8}$ in. from face of legs and a stock embossed frieze panel let in.

Cut the plywood trays to size and fit them into place. After fitting clamp the trays together and cut the hand slot shown through them. Take them apart, clean up each slot thoroughly, and round the front edge of each tray.

The doors should now be hung, 2 in. machine made brass butts being used. Place the doors so that the hanging stiles come together and mark the position of the hinges (about 3 in. from top rail and $3\frac{1}{2}$ in. from bottom rail) very carefully. Fasten hinges in position, then place each door in its place and mark position of hinges on the legs of

the cabinet. Use the gauges already set (as used on the doors), and cut the spaces in a similar manner. Screw doors in place and fix all fittings. The fittings should then be removed and the work stained to the desired shade and then wax polished.

THE CUTTING LIST is as follows:—

		Long. ft. ins.	Wide. ins.	Thick. ins.
(A)	Four legs	3 0	1 $\frac{1}{2}$	1 $\frac{1}{2}$
(B)	Top front rail	1 6	1 $\frac{1}{2}$	$\frac{7}{8}$
(C)	Bottom front rail	1 6	1 $\frac{1}{2}$	$\frac{3}{8}$
(D)	Four end rails	1 2	1 $\frac{1}{2}$	$\frac{3}{8}$
(E)	Two back rails... ..	1 6	1 $\frac{1}{2}$	$\frac{3}{8}$
(F)	Door stop	1 4	1	$\frac{1}{2}$
(G)	Top	1 6 $\frac{1}{2}$	15	$\frac{3}{8}$
(H)	Bead	4 0	$\frac{3}{8}$	$\frac{1}{8}$
	Twelve runners (to fit)	1 1	1 $\frac{1}{2}$	$\frac{1}{2}$
	Six plywood trays	1 4	13	ply.
	Plywood back	2 0	17	ply.
	Two plywood ends	2 0	13 $\frac{1}{2}$	ply.
	Bottom	1 6	14	ply.
	Four door stiles	2 0	1 $\frac{1}{2}$	$\frac{3}{8}$
	Six door rails	0 8 $\frac{1}{2}$	1 $\frac{1}{2}$	$\frac{3}{8}$
	Four door panels	0 10	6	ply.
	Astragal	2 0	1 $\frac{1}{8}$	$\frac{1}{4}$

Allowance is made for joints and paring. (323)

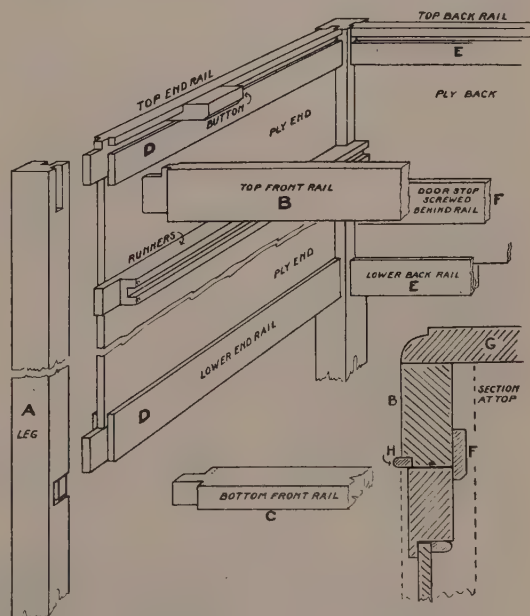


FIG. 4.—SKETCH VIEW OF CONSTRUCTION.

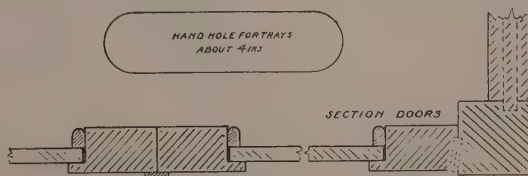


FIG. 5.—SECTION OF DOORS, ETC.

WOODEN PLANES

ENLARGING THE MOUTH AND TRUEING THE SOLE

A NEW ZEALAND reader has forwarded us two queries, replies to which should be of interest to Handicraft Students as well as to woodworkers generally. The first of these is: "Explain how you would enlarge the mouth of a wooden plane without detriment to the tool."

ENLARGING THE MOUTH.—One of the simplest methods is to glue a piece of leather at the top of the frog of a new plane as shown in Fig. 1. This will slightly alter the *pitch* of the blade, throwing it more upright, and consequently the mouth will have slightly more clearance to pass the shavings through the escapement. As the sole of the plane wears away with constant use the wood will have to be planed true and out of winding by using a steel trying plane. The removal of a few shavings will widen the mouth, and at this stage the thin strip of leather is removed from the top of the frog. The removal of this strip lessens the pitch of the blade, and this alteration slightly closes up the mouth.

Another method (and one possibly unknown to the examiner who framed the question) is to construct the plane as at Fig. 2. The plane is made with a boxwood wedge (W) which is inserted through a suitable slot and fits very tightly. The wedge is so made in the new plane that it allows the correct width of mouth for comfortable working; but, when the sole becomes uneven and worn, the wedge is driven backward with a suitable piece of wood which is used punchways. The sole is then trued up and a shaving taken off the wedge (W) so as to allow it to be driven downwards; it thus closes up the mouth again.

TRUEING THE SOLE.—The second query is: "Give a full description of how you would true the sole of a technical jack plane."

The simplest method here would be to pass it over the surface of a Baxter-Whitney power surfacing machine, which reduces wood to less than 1-32nd in. without fracturing the thin shaving left. To true up the plane by hand may be accomplished by planing from heel to toe whilst the body of the plane is held in the vice.

The plane used for shaving off the wood should be a nicely conditioned metal trying or jointing plane of the Stanley, Miller's Fall, Sargent, or Spier's type. To prove that the wrought surface is true, the jack plane should be tested on an engineer's surface plate. When a surface plate

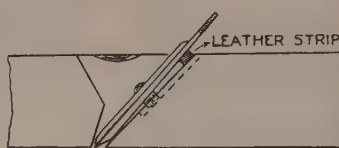


FIG. 1.—STRIP OF LEATHER GLUED TO FROG OF PLANE.

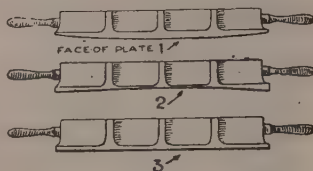


FIG. 2.—SURFACING PLATE.

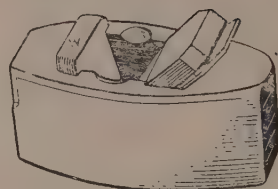


FIG. 3.—WEDGE METHOD.

is to be used for testing the surface, it is wiped over thinly with a mixture of red lead and oil; or, for testing a wooden plane, it may simply be wiped over with a dirty oil rag, the darkened oil showing clearly on the newly conditioned wood. When the work is laid upon the plate and gently rubbed, the *high* parts will be reddened or dirtied. These high parts must be dressed down, and the work tested again and again until the whole surface becomes equally reddened.

To make a surfacing plate, the Whitworth method is used; that is, three plates are made as true as possible and compared with one another: No. 1 plate with No. 2 (No. 2 being eased to fit No. 1), then No. 2 with No. 3, and so on until all the surfaces are perfectly flat. Fig. 3 shows the application of the Whitworth method, for if No. 1 is in rounding instead of being straight and No. 2 is sufficiently hollow to allow of them fitting each other, it is impossible for No. 3 to fit both the rounded and the hollowed surface.

It might be noted here that, from a glance at Fig. 4 (P₃), the power applied to the handle of a *metal* plane by the hand, wrist and arm is in a more direct line with the sole and cutting edge than is the case with the ordinary type of wooden plane shown at P₁ and P₂. At P₁, the direction of the power varies between the arrows which indicate the angle (P₁), owing to the thrust variation of the wrist and forearm, and this plane has more tendency to lift at the heel than the plane at P₂ or at P₃. The plane at P₃ has therefore a better balance when in actual use, and the power applied is more direct. (330)



FIG. 4.—ILLUSTRATING THE VARYING DEGREES OF POWER APPLIED TO HANDLE OF METAL PLANE.

MAKING A RABBIT HUTCH

ANYONE wishing to knock up a rabbit hutch for a boy will find the one shown at Fig. 1 to be on up-to-date lines and economical and simple to build. The hutch is divided into two compartments. The end of the night compartment is solid and the front is fitted with a solid door, while the end of the day compartment is framed and wire covered, a door of similar construction being fitted to the front.

THE FRONT (Fig. 2) should be made first, the framing consisting of top, bottom and three upright rails, 2 in. wide by $\frac{3}{4}$ in. thick, half-lapped and screwed together. The framed end (Fig. 3) is made with top, bottom and two upright rails, 2 in. wide by $\frac{3}{4}$ in. thick, half-lapped and screwed together. The solid end (Fig. 4) is made up to the required size with $\frac{3}{4}$ in. matching, battens 2 in. wide being nailed across the top and bottom edges.

In assembling the parts, the front is nailed to the front edges of the ends, and the back, which is of $\frac{3}{4}$ in. matching, is nailed to the back edges, as at Fig. 5. The division (Fig. 6) is made up to the shape shown, and battens are nailed across at the top and bottom edges. The bottom batten finishes level with the back edge of the division, but the top batten is long enough to extend right over to the back. The division is fitted behind the middle upright of the front frame, and is nailed in place.

THE ROOF AND BOTTOM of the hutch are also of $\frac{3}{4}$ in. matching, nailed in place, the boards running the length way or from front to back as is most economical. The roof should be covered

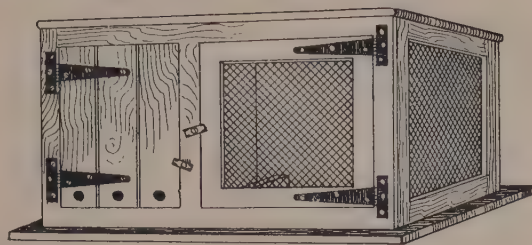
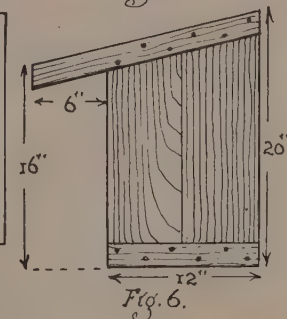
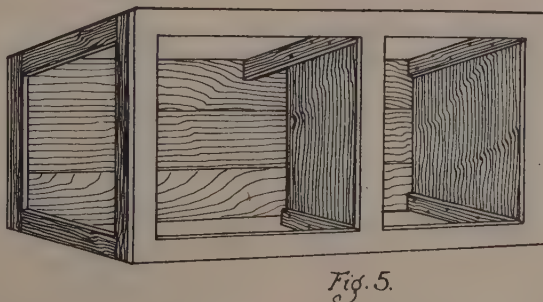
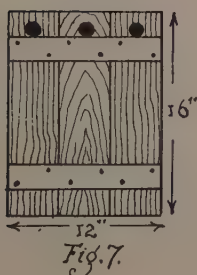
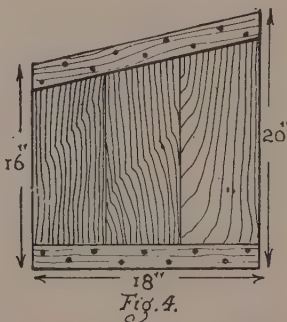
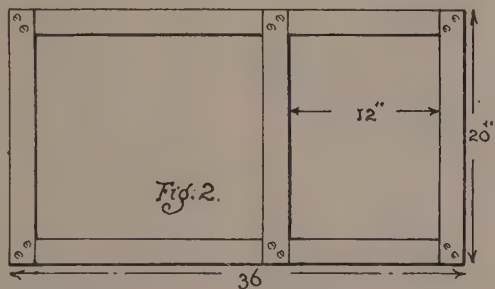
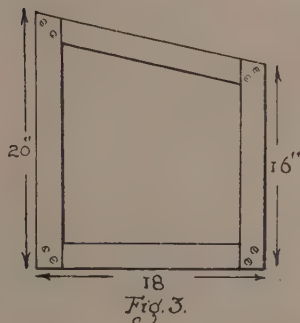


FIG. 1.—RABBIT HUTCH: LENGTH, 3 FEET; WIDTH, 20 IN.; HEIGHT, 21 IN.

with roofing felt, and battens may be nailed across the end grain.

THE DOOR OF THE NIGHT COMPARTMENT is made up with $\frac{3}{4}$ in. matching. Battens are nailed across about $1\frac{1}{2}$ in. in from the ends, and holes about 1 in. diameter are bored at the top for ventilation, as at Fig. 7. The door of the day compartment is made with 2 in. by $\frac{3}{4}$ in. stuff, half-lapped and screwed together. Long flap T-hinges should be used to hang the doors. Buttons are fitted for fastening, and the wire netting should be fixed inside the door and end of the day compartment with small wire staples.

A hutch of this kind is easily kept clean if removable bottoms in the form of shallow trays are made to fit each compartment. The wood used should be thin, and small slips should be nailed round the edges. (320)



FIGS. 2 TO 7.—DETAILS OF RABBIT HUTCH: ELEVATIONS, PLAN, ETC.

NEST OF FIVE TABLES

COMPRISING ONE CIRCULAR AND FOUR QUADRANT TABLES

FOR indoor and outdoor purposes alike the nest of tables is always handy. In the present case we have departed from the older-fashioned type of rectangular table; instead, we show a useful circular table of 30 ins. diameter which conveniently houses four quadrant-shaped tables, small, but still of serviceable size. The height suggested for the mother table is 18 ins. (the others being 17 ins.), but this height could be increased if felt desirable.

Oak is the appropriate wood to use, but of course mahogany and walnut are also suitable where surrounding furniture has to be matched.

LARGE TABLE.—Begin by constructing the circular table. Procure the four legs (A) and rebate on the outside faces to a depth of $\frac{3}{8}$ in. and width of $1\frac{1}{2}$ ins.; cut dovetail at top for the cross rails (B) and mortises for the tenons of the bottom stretchers (C). Half lap the cross rails and stretchers at their meeting places in the centres. Shape up the circular top (D), using a 15 in. radius to give a total diameter of 30 ins. Work a semi-circular section around the edge and finally fix to the cross rails (B) by means of buttons. These buttons should be tongued and grooved into the cross rails at intervals of 4 ins. and screwed through dry to the top. Fig. 2 shows the plan, positions of the buttons and all details to scale. The centre table might now be cramped up together for the smaller tables.

SMALL TABLES.—Fig. 3 gives details and sizes of the smaller tables. It would be as well to make a full size plan for the shaping of the tops (J) and stretchers (I). The legs (E) are finished $1\frac{1}{4}$ ins. square, and must be mortised top and bottom for the tenons of the rails (F) and

stretchers (H). The part circular rails (G) and (I) should be dowelled for preference.

Shape up the tops and shelves and work a half round section on each edge. Notch the shelves around the legs as in Fig. 3. Finally glue and cramp up, screwing up through the rails and stretchers to fix the tops and stretchers.

The smaller tables are supported in position under the main table by means of the brackets (L), a section of which is given in Fig. 4. The brackets are screwed and glued to the cross rails and are just slightly shaped to allow the side rails of the smaller tables to drop over into position. With this completed, the whole five tables might be stained vandyke brown and finished to obtain a Jacobean rubbed off effect.

Oak-faced plywood should be first choice for the tops and shelves, the edges being stain-coloured. Plain oak will suffice for the remaining

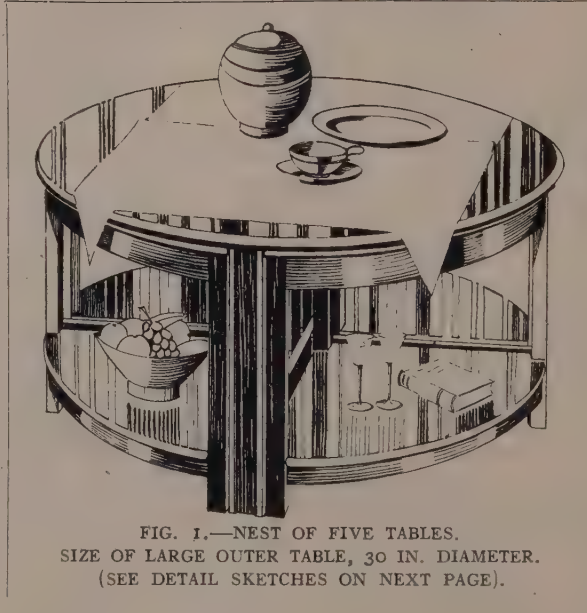


FIG. 1.—NEST OF FIVE TABLES.
SIZE OF LARGE OUTER TABLE, 30 IN. DIAMETER.
(SEE DETAIL SKETCHES ON NEXT PAGE).

pieces.

CUTTING LIST:—

		Long.	Wide.	Thick.
		ft.	ins.	ins.
A	Four legs	1	5 $\frac{1}{2}$	2 $\frac{1}{2}$
B	Two cross rails	2	4	2 $\frac{1}{2}$
C	Two stretchers	2	4	1 $\frac{1}{2}$
D	One top	2	6	30
E	Twelve legs	1	4 $\frac{1}{2}$	1 $\frac{1}{2}$
F	Eight rails	0	11 $\frac{1}{2}$	1 $\frac{1}{2}$
G	Four rails	1	4	3
H	Eight stretchers	0	11 $\frac{1}{2}$	1 $\frac{1}{2}$
I	Four stretchers	1	4	3
J	Four tops	1	1	13
K	Four selves	1	0 $\frac{1}{2}$	12 $\frac{1}{2}$
L	Four brackets	0	6 $\frac{1}{2}$	1 $\frac{1}{2}$

All sizes are net. Allow for cutting, planing and cleaning. (245)

THE OAK is a common tree in our woodlands, our parks and hedgerows, more plentiful, unfortunately, in the latter position than in the first named; for, grown in the forest in close proximity and under afforestation care, the tree produces far straighter, longer and cleaner boles of timber than when exposed on all sides, and where it can assert its natural growth by developing the many low horizontally spreading branches that are typical of the aspect of this tree. As a

constructional timber which has long ago proved its value, we can point to the half-timbered houses that have stood the stress of storm and ravages of inclement weather for so many ages, to the fine roof construction work of many of our ancient buildings, and to the pile and bridge work which exists—an instance of which latter may be seen in the Kew Museum, where a pile from Old London Bridge, which had been in use about 600 years, is exhibited. As a decorative wood we

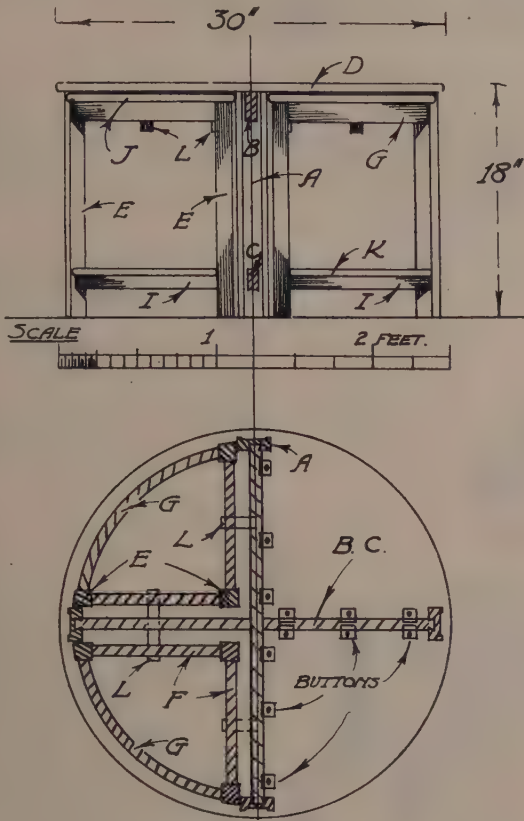


FIG. 2 (ABOVE)—ELEVATION OF TABLES, WITH SCALE.

(BELOW)—PLAN OF TABLES: HALF PLAN OF TOP TABLE AT RIGHT, HALF PLAN OF ENCLOSED TABLES AT LEFT.

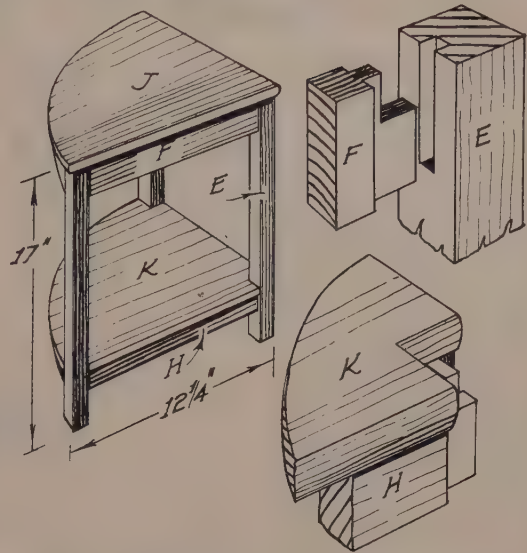


FIG. 3.—CONSTRUCTION OF SMALL TABLES.

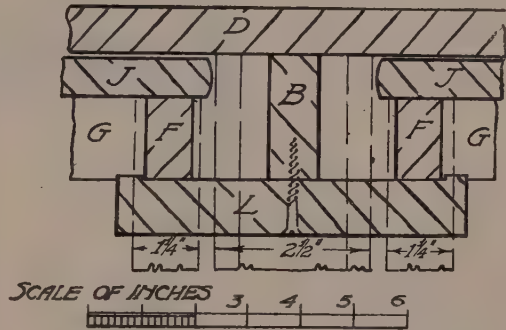


FIG. 4.—SECTION THROUGH BRACKET.

also have objects on hand in many houses and buildings at the present day: fine staircases, panellings and house fittings that sustain its repute in this respect.

Stringent as were the laws in regard to the conservation of this wood in former times, when it was deemed an absolute necessity of the nation to provide sufficient supplies for the building of ships, very little concern was taken afterwards when boats, constructed of iron, took the place of wooden walls, and in consequence the supply, especially of the better class timber, has gradually fallen away. In the meantime products of other countries have steadily supplanted the British oak in its use in many industries.

The principal uses of oak, apart from furniture, are: (1) Barge and boat building, these industries requiring planks in varying thicknesses and of long lengths; the same trades can also use the many crooked limbs that are so often found in the trees of hedgerow growth for what are known

as knees, which form part of the framework of boats. (2) Wheelwrights and coach builders are also large consumers of the wood for the framework of heavy and other vehicles. (3) The railway wagon and carriage construction firms were at one time, and are now to a smaller extent, heavy consumers of the timber for the building of the frames of the wagons and coaches, but have found readier means of procuring equally good timber—first in the oak shipped from East Prussian ports, and in late years in the oak shipped from the United States. (4) The building trade takes fair supplies for use in the making of sills, frames, newels, stair treads and similar work, but there, too, Russian, American and Japanese wood has largely superseded English timber. (5) It is used also in a minor degree for coffin work, posts and gates for farm use, ladder rungs, spokes, and has also many other miscellaneous uses where a tenacious and durable material is required.

HOW A DECORATIVE GATE MAY BE ADDED TO THE GARDEN

THE bungalow garden can often be enhanced by an artistic lattice or fencing. Thus in Fig. 1 a suggestion is made for a little addition to an existing (featureless) gate which, without involving any great expense, will provide an entrance to the garden that should rank as a distinct improvement upon what previously existed.

It will be seen that the fencing, instead of presenting a straight line of uniform height, has a couple of substantial posts introduced which, with its somewhat oriental effect above, will prove noticeable, whilst providing a good motif for the training of a clematis or Dorothy rose. The fence then breaks back slightly at an angle and returns to a sufficient extent along the garden path to give what may be called an "entresol" effect.

A little sketch plan is given (Fig. 4), indicating the canted break in the straight fence. An elevation of the whole thing looking from inside is seen in Fig. 2, the over all height showing 9 ft. 0 in., total width a full 8 ft. 0 in., which allows 3 ft. 0 in. clear for the gateway and a height for the gate itself of 4 ft. 0 in.

In getting out the long posts (A) stuff 4 in. by 3 in. will serve, or a net 4 in. by 4 in. may be used. Into this the cross bar (B) will be neatly halved, using a piece to finish 4 ft. 10½ in. long shaped at ends by compass line and nailed or screwed into position. The upper bar (C), spaced a full 6 in. higher, will be mortised for a corresponding tenon to enter right through and be wedged. Material for (B) is the same as for the posts, whilst for (C) 4 in. by 2 in. stuff will be used, the side edges and ends being neatly rounded. The projection is about 2 in. beyond the posts at each end.

If these posts are to be fixed by entering in the ground, an extra foot at least should be allowed for the purpose, this portion being soaked in the tar pail thoroughly before use. It can then be fitted with spurs of any odd thick stuff at hand, preferably notched in as indicated at Fig. 8 and nailed. The whole thing can then be inserted into a previously prepared hole which can be afterwards filled with any odd brick-rubble, stones or hard-core of any kind and afterwards rammed

home level.

It is, however, possible to fix the posts in a neat manner by sinking a hole a full spit deep and filling this with concrete. In the centre of this filling, before hard, a stout bolt can be cemented upright to serve as a pin to enter a corresponding hole in the lower end of post which will rest upon it as indicated in Fig. 7.

The structure may be further stiffened above by 3 in. blocks nailed into angles (D, Fig. 2), the finished result adding somewhat to quaintness.

A plan of the structure is given in Fig. 5, showing the angle as about 2 ft. 6 in. long between posts, which however could be slightly lessened if desired.

The remaining posts can be of stuff to agree with (A), or can be of 4 in. by 4 in. material which will have a good substantial effect for the whole thing. The rails at their lightest may be of 3 in. by 2 in. stuff, or 4 in. by 2 in. if preferred, the top edges being rounded for finish, which also assists weathering. Details for the jointing of rails into posts is given in Fig. 3.

The slats throughout may be of 3 in. by 1 in. stuff, the tops and edges being rounded and also the edges; 3 in. by 2 in. stuff is used for the gate uprights

as the lightest desirable.

The cappings on the four shorter posts should be cut to overhang a full one inch on all sides and may be of 1½ in. thickness nailed into position. The balls thereon may be purchased in sets of four 4 in. in diameter at a nominal cost, and are provided with a dowel for fixing into a corresponding hole in capping to be further secured by a wire nail entered askew. A sketch of the joint for gate with finished section of rail and slats is given in Fig. 6.

Stout iron cross-garnet hinges may be used for swinging the gate, although it is preferable in the long run to procure a pair of special heavy hinges made for the purpose, which can be screwed into position. It is best in using cross-garnet hinges to select a large size and shorten the arms as required.

With regard to finish, many prefer to give a couple of coats of solignum or creosote which

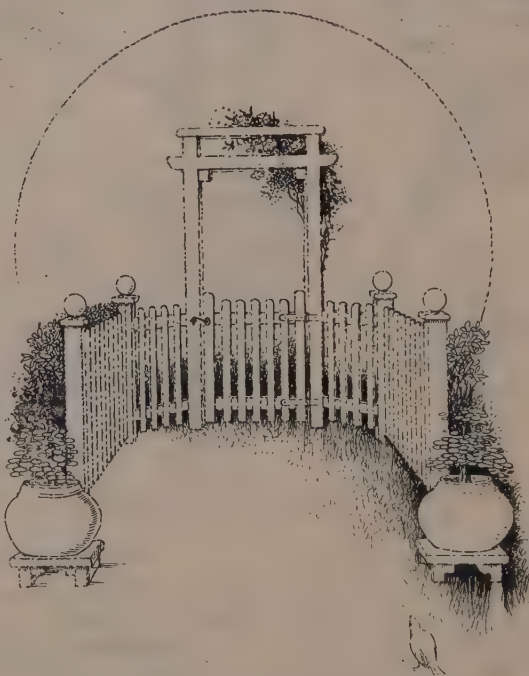


FIG. 1.—AN ATTRACTIVE ADDITION TO THE GARDEN GATE, VIEWED FROM THE INSIDE.

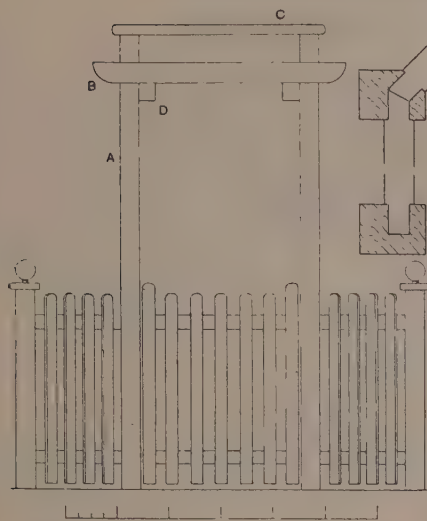


FIG. 2.—ELEVATION WITH SCALE.

(ABOVE: FIG. 3.—JOINTS.

FIG. 4.—SKETCH PLAN.

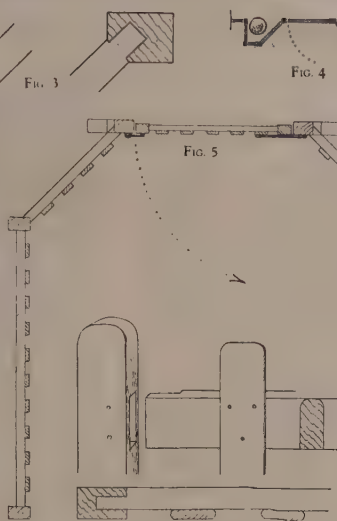


FIG. 6.—GATE JOINT.

FIG. 5.—PLAN.

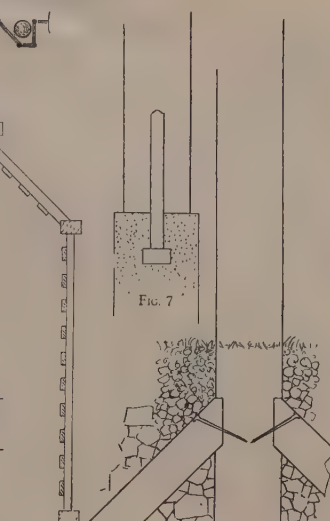


FIG. 8.—SPURS NOTCHED.

FIG. 7.—CONCRETE BED.)

affords (apart from its protective value) a pleasing contrast to the garden greenery.

Although involving some slight extra trouble, however, a finish of white paint may very strongly be recommended in the present instance. The wood should first be primed and afterwards be given three coats of white lead paint, using pure white lead only and best American turpentine, with thereafter one coat only each year. Finished in this manner the fencing and gateway should provide a really attractive feature in good taste and well repay the worker for his effort in putting the whole thing through.

It will, of course, hardly be necessary to remind the worker that for outside use all joints should be well painted with thick paint for assembling the parts. The same applies if creosote is used instead of paint for final treatment.

A further remark may be made with regard to the rustic stools and pots seen in the sketch. Tubs look well, but in an effort to get away from these the pots were made up with concrete worked round a couple of old pails. Nails were punched through these pails to give a holding, and a sur-

round of small mesh wire netting wound round and pressed into the concrete as it was built up. A mixture of two parts sand to one part cement mixed to a stiff paste and worked well home answers the purpose in view. If too difficult to model by hand a hole can be made in the centre of pail bottom for the entry of a piece of gas barrel to serve as pivot. Fill the pail with wet sand to weight it and shape a piece of wood to the section of bowl preferred. Hinge this to the pivot and scrape away all excess concrete. The top of bowl can be worked over by hand later, using a ring of stout wire as core. The stools were made of pieces of ordinary slating batten—2 in. by 2 in.—to form a rack 16 in. by 16 in. and covered with sheet zinc, all being painted white. The short feet were simply pieces of white glazed brick which happened to be at hand, but, failing these, small boxes can easily be knocked up from odd board and filled with concrete. Thus modelled to size, 2½ in. by 2½ in. by 4 in., they easily drop out when set if the wood sides are eased away. Holes should be made in the pail bottoms for drainage.

(327)

Next Month's Woodworker

FOR SEPTEMBER we have ready the combined dressing cabinet and chest of the light bedroom suite under review; also the secretaire for an oak living room suite. The next article in the Outdoor Woodwork Joints series will deal with the construction of a cottage porch; whilst the chapter on Home Carpentry (unavoidably held over this month) will be devoted to the making of oak linen or blanket chests. We have also in preparation many interesting items of light carpentry. Please do not fail to place an order with your newsagent for the September and following numbers.

THE USES of English walnut, when it can be procured, are limited. Formerly, when it was plentiful, it was utilised in the making of furniture; but the fashion for this wood has declined and imported descriptions are now used when such cabinet work is required. For many years it has been the chief material in the making of gun stocks, and even now walnut is the only wood used for the purpose. Experiments and tests have taken place to find a substitute, and innumerable woods, imported and native, have been tried; but every one has been discarded, and so the wood maintains a standard position in its use for this purpose.

STAIR CONSTRUCTION

CUTTING THE STRINGER FOR ATTIC OR PORCH STAIR

SOONER or later the time comes when the woodwork student finds it necessary to know (1) how to measure the space where a stair is to be erected, and (2) how to lay out the stringers so that he can build the stair in position.

In stair building there are two very common terms—the “rise” of the stair and the “run.” The rise is the height from floor to floor, whilst the run is the horizontal distance from the first riser to the last riser. Fig. 1 shows a stair with a rise of 6 ft. 5 ins. (77 ins.) and a run of 7 ft. 6 ins. (90 ins.). There is always one more riser than tread in a flight of stairs, and the stair in Fig. 1 has eleven risers and ten treads.

If possible, divide the total height (or rise) so that each riser will not be over 7 ins. and the tread not less than 9 ins. A *wide* tread with a *low* riser makes an easy stair, but of course it frequently happens that something has to be sacrificed when it is necessary to fit a stair to a given space.

If the stringer is to be placed on a concrete floor or other place where a finished floor is not to be laid, the first riser in the stringer must be

made one inch less than the other; the treads, which are usually 1 in. thick, raise the lower one but do not change the height of the others.

Place the plank which is to be used for a stringer on a pair of boxes, and square one end by drawing a line across near the end and at right angles to the edge as shown at Fig. 2. Place a square on the plank (as Fig. 3) with 9 ins. on the blade for the run and 7 ins. on the tongue for the rise and locate X. Draw a line through X parallel to the edge of the plank.

Place the square on the plank (as at Fig. 4) and draw a line along the edge of the blade and tongue of the square. The wood to the right of this line is cut away, thus giving the face which is fastened to the framing of the floor at the top.

Turn the square over as shown at Fig. 5 and draw a line along the edge of the blade and tongue. This is the first tread and rise at the top. Place the square as at Fig. 6, and lay off the second tread. Continue this until the total number of treads and risers have been laid off.

Now measure down the required distance from the top end of the last riser (which in this stair

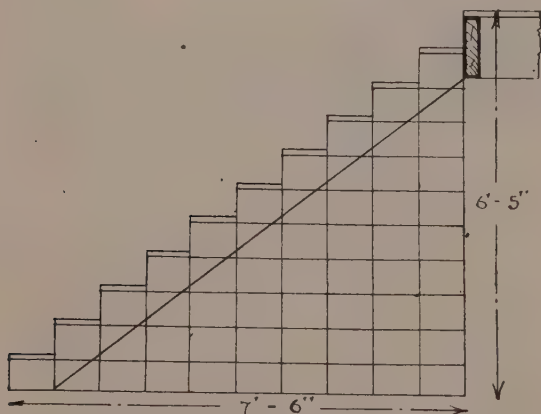


FIG. 1. STAIR WITH ELEVEN RISERS AND TEN TREADS. HEIGHT OF RISE, 6 FT 5 INS.; LENGTH OF RUN, 7 FT. 6 INS.

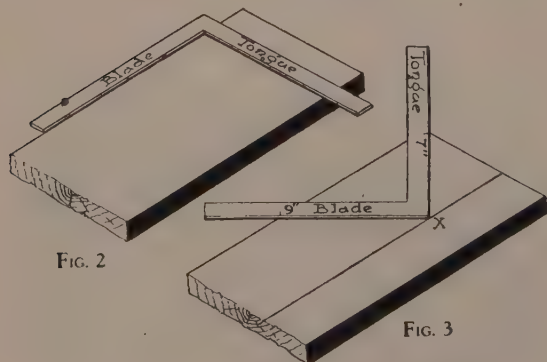


FIG. 2

FIG. 3

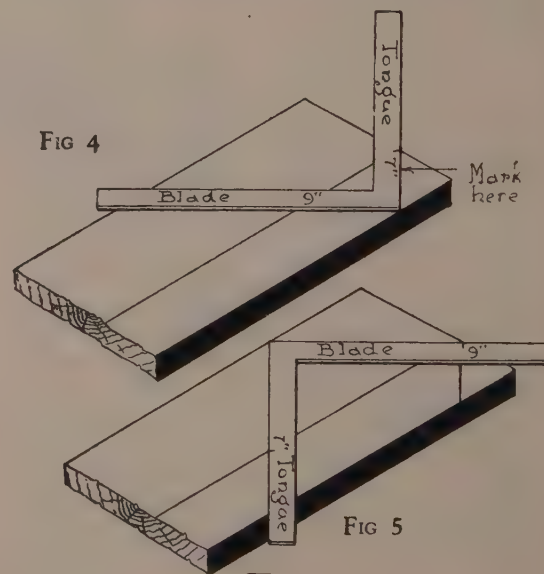


FIG. 4

FIG. 5

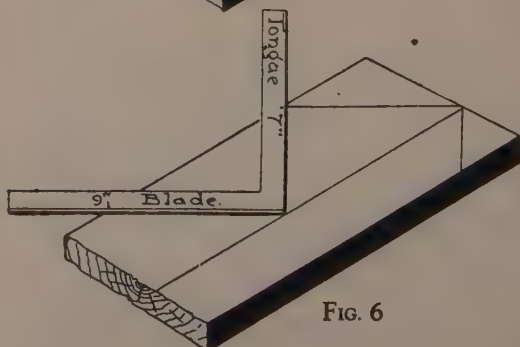
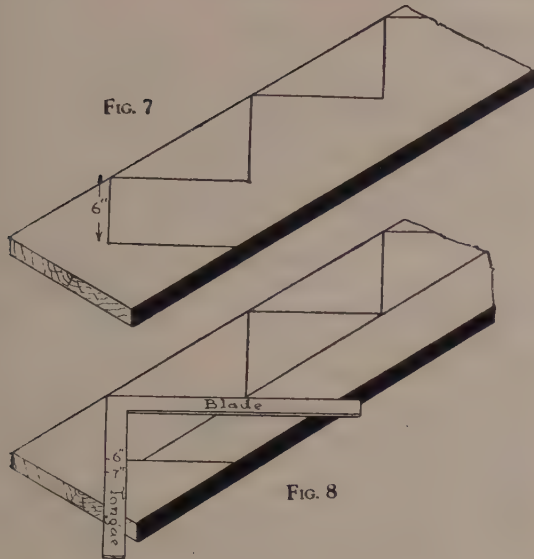


FIG. 6

FIGS. 2 AND 3. FIRST STAGES IN MARKING.

FIGS. 4, 5 AND 6. MARKING THE TREADS AND RISERS.



FIGS. 7 AND 8. FINAL MARKINGS.

is 6 ins.) and draw a line parallel to the bottom tread (Fig. 7); or, if the plank is not long enough to allow the square to be placed in the usual way, a line may be drawn parallel to the edge of the plank as in Fig. 3 and the square turned over as at Fig. 8. At 6 ins. on the tongue of the square a line is drawn parallel to the tread for the floor line cut.

AN INTERESTING PROBLEM (with its solution) is shown at Fig. 9.—viz., to lay out the stair stringer for an attic the ceiling of which is 8 ft. high; the joists are 10 ins., floorboards 1 in., and plaster, ceiling and lath 1 in. The stair leads from a point on the floor 9 ft. 4 ins. in front of where the stair lands in the attic. The total rise is 108 ins., which makes 15 risers at $7\frac{2}{5}$ of an inch. The total run of 112 ins. is divided by 14 (the number of treads), making each 8 ins.

The head room should be at least 6 ft. clear. PORCH STEPS.—The lay-out for the stringer for

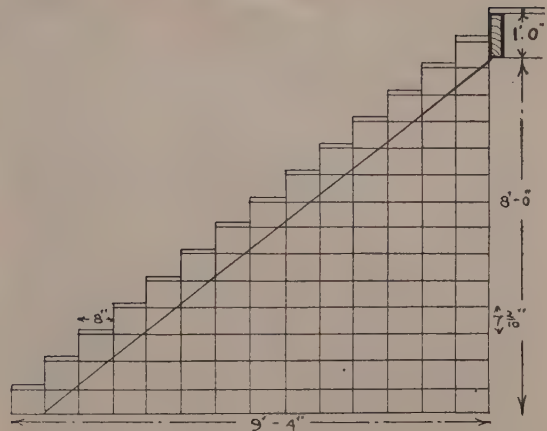


FIG. 9. LAYING OUT STRINGER FOR ATTIC STAIR.

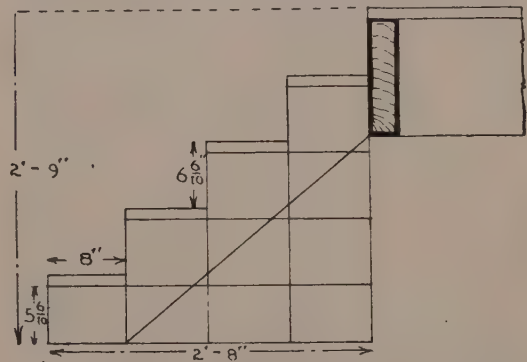


FIG. 10. LAYING OUT STRINGER FOR PORCH STEPS.

steps of a porch is shown at Fig. 10. The total rise of 33 ins. makes four risers of $6\frac{6}{10}$ th ins. and one of $5\frac{6}{10}$ th ins. If we allow a 1 in. step on each of the treads, we have all risers $6\frac{6}{10}$ th in. The 32 ins. of run gives a tread of 8 ins. for each step. (85)

WHEN LAYING VENEER on the doors of wardrobes, or other large surfaces it is not good policy to veneer one side of the wood only. When veneer is laid there is a certain percentage of water in the glue and this causes expansion. When the water and glue dries the veneered side naturally contracts owing to the moisture evaporating and the glue crystallising. The safest plan is to veneer on the opposite side so as to counteract the expansion and contraction. If, for instance, a wide wardrobe door is being veneered on its face side with burr veneer, then the inside of the door should have a plain veneer. I am an interested reader and send this along in the hope that E. J. C. of Southampton and others will benefit by it.—(JOURNEYMAN.)

[Editorial note.—The best way is to veneer both sides with a plain veneer which should run across the grain of the wood and then to lay on top the burr walnut veneer, with the grain running in the direction of the original core or stock. This is the French method which was used on much of the Louis work which is in fair condition to-day. It is, of course, costly but well worth the time and trouble when a piece of furniture is for your personal use. We have previously called attention to this method in our earlier volumes.] (48)

TO SEVERAL READERS.—See May number (page 141) for article on a boy's two-seater pedal car.

POLISH REVIVERS AND FURNITURE CREAMS

AFTER the spring cleaning period one often notices that polished furniture has a dull, dirty and somewhat greasy appearance, with a tendency to fog or bloom, which is frequently the forerunner of sweating. Much can be done to clean the surface and enrich the gloss by the judicious application of a liquid furniture reviver.

It is admitted that revivers which have a spirit basis do to a slight extent recondition the surface by "licking-off" a certain amount of the shellac film that was deposited on the wood by the polishing rubber; therefore a reviving pad acts in exactly the opposite manner to the french polishing rubber. Workers and housewives should get this idea firmly established in their minds, because the constant and too frequent a use of a spirit reviver will gradually lessen the film of polish.

Furniture having a dull and greasy appearance is revived by taking a piece of soft cloth such as a piece of cheese rag, or by making a pad of cotton wadding and saturating it with reviver. The pad or rag should then be squeezed out to equally distribute the liquid and to get rid of the excessive moisture. It may then be well rubbed over the polished surface in the accustomed circular, straight and figure-eight paths, after which another clean soft rag is used to remove the reviver and to friction polish the cleaned surface.

All trace of the reviver must be carefully removed, especially from the corners of panels and the quirks of the mouldings; otherwise dust and dirt will settle on these damp and moist portions with disastrous results.

REVIVER NO. 1.—Mix in the order given: one gill malt vinegar, one gill methylated spirits, half a pint of raw linseed oil, one ounce of butter of antimony (this is a liquid) and one ounce of paraffin. Shake well every time you charge up your pad or rag.

REVIVER NO. 2.—Four ounces rectified oil of amber, four ounces olive oil, four ounces turpentine, half an ounce of paraffin, adding sufficient oil of lavender to slightly scent the mixture. Soak your pad; apply fairly freely and then wipe off and polish up with a soft duster.

REVIVER NO. 3.—First mix together equal parts of lime water and raw linseed oil; then thin the mixture with sufficient turpentine.

REVIVER NO. 4.—One pint vinegar, 1 pint methylated spirits, 1 pint raw linseed oil, mixed in the order given. Mix separately 1 ounce of household soda in half a pint of spirits of salts and then add it to the first mentioned mixture.

REVIVER NO. 5.—76 grains Vienna chalk, 5 fluid ounces water, 10 drachms acetic acid, 2 drachms sulphuric acid, 10 drachms methylated spirits, 2 drachms sodium carbonate, 3 fluid ozs. medicinal paraffin oil, 6 drachms powdered gum acacia; or the ingredients in a like proportion. Mix the

gum acacia with the liquid paraffin in a mortar; add 12 drachms of water at a time and mix thoroughly until a thick emulsion is formed. Then add the remainder of the water in small quantities, shaking the mixture well. Add the acids to the sodium carbonate and add the methylated spirits. Mix this liquid with the emulsion. If the product is slightly thick add 2 to 3 ounces of distilled water and shake well. This recipe is not known outside the practice of the writer and it is best used in the hands of an experienced french polisher. It is an adaptation of the Continental method of acid finishing.

For the housewife we here give a tried and recommended furniture cream which the writer has used with success for many years: 3 ounces English beeswax, 1 ounce white wax, 1 ounce castile soap, 1 pint turpentine and 1 pint boiling water. Shred the wax and the soap with an old knife and cover it with turpentine. Agitate this until it dissolves in a cold state; because heat has a tendency to denature the wax. Dissolve a piece of white scented soap the size of an egg in some hot water and then add this saponified hot water very, very slowly, beating it in with a wooden spoon. Bottle for use in a wide mouthed jar and label it. The cream should be applied with a soft cloth, well wiped off and polished up. Some workers add a teaspoonful of acetic acid to the wax and turpentine prior to beating the cream together.

The so-called Derby cream furniture polish is made by mixing 6 ounces raw linseed oil and 3 ounces acetic acid, well stirring it; then adding half an ounce of butter of antimony and 3 ounces of methylated spirit. Add a piece of camphor the size of a walnut to subdue the smell of the antimony. Always shake before and during use.

Revivers which contain methylated spirits have a tendency to quickly evaporate and should be kept well corked up. Should a reviver of this class appear to bite too keenly on your polished surface it is advisable to add either a little more raw linseed oil or a little medicinal white vaseline oil.

Bear in mind when mixing revivers that acids act as *hardeners* of the film; paraffin acts as a cleaner but lacks in lubricating properties. French and Vienna chalks act as the finest of scourers, methylated spirits as a gum solvent, and linseed oil as a lubricant which will oxidise if left standing for some time. Gum acacia acts as a binder and prevents the ingredients in Reviver No. 5 from settling; in fact, without the gum acacia it is practically impossible to mix this recipe.

Revivers having a large proportion of spirits in their composition should not be used by those workers who are unaccustomed to french polishing, because they quickly soften the body of polish. The Derby cream is the simplest and most effective reviver to use.

THE QUESTION BOX

QUESTIONS only of general interest can be answered in these columns. Readers will kindly note:—(1) Detailed replies or sketches cannot under any circumstances be sent by post; but, as the Editor may require further information, a stamped addressed envelope should be enclosed. (2) Full particulars of what is required should be clearly stated, and (if possible) a rough sketch with over-all sizes enclosed. (3) Questions of purely personal interest cannot be dealt with in these columns.

NOTE.—With each Query must be sent a Coupon (see foot of page iv. of cover). All queries to be addressed: Editor, THE WOODWORKER, Montague House, Russell Square, London, W.C.1.

A Mahogany Cabinet

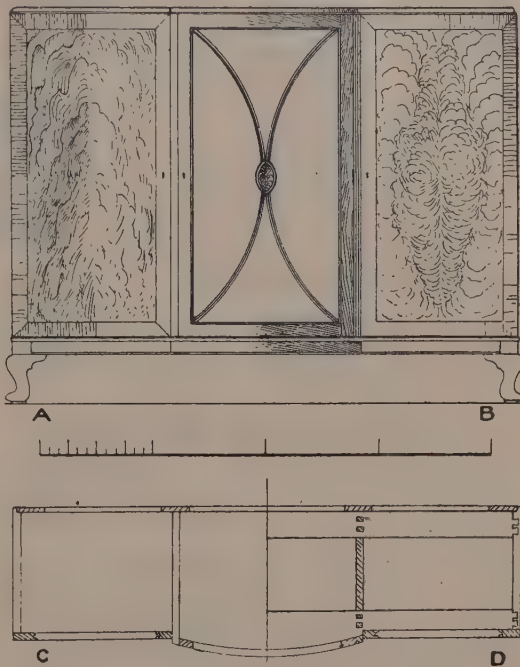
J. T. (Southwick) asks for help with the construction of a mahogany drawing-room cabinet.

REPLY.—We offer a design to scale, on the lines of your rough sketch. The width, as stipulated, shows 4 ft. 6 ins., and in keeping with this the cabinet might be 3 ft. 6 ins. high by 14 ins. deep on ends, allowing a "spring" or projection for the bow centre part of about 2 ins., thus making the total depth here 16 ins. In framing up the carcase the ends and two inner divisions, bottom and top framing rails should all be of full $\frac{3}{4}$ in. thickness; the doors also should be of $\frac{3}{4}$ in. or preferably $\frac{7}{8}$ in. thickness in solid wood, or a door of multi-ply might finish $\frac{3}{4}$ in. thick. The cabinet top, which you wish to finish with receding mould, should not be less than $\frac{3}{4}$ in. thick.

In our sketch (A and B) alternative suggestions are offered for treatment, the door having a mitred cross-cut surround, $1\frac{1}{2}$ ins. wide, with a "curl" or figured grain wood, halved from the centre with a grain rising vertically. In B "curl" mahogany is shown quartered up to form a central feature with a surround of wood having a more open run of grain, together with a wide cross-banding as before. Two lever locks and keys can be fitted, but handles are omitted.

In setting out the cabinet it will be noted that the centre door is allowed a width of 19 ins., the wing doors being about 2 ins. less, the inner divisions showing on face. In framing up the centre door, stiles and rails should not be less than $1\frac{1}{2}$ in. wide, to be mortised and tenoned together and the joints pinned. The Gothic design for door of Chippendale type is of course good in taste, but as an alternative design is required we offer one on simple lines which should prove effective and which could be worked out either to astragal section or in $\frac{1}{2}$ in. by $\frac{1}{4}$ in. flat, with the usual slip grooved in behind to form a rebate for the glazing. As a finish the centre lozenge shape might also carry a facing of figured veneer. Whilst $\frac{3}{4}$ in. thickness wooden shelves can be fitted to wing cupboards, either one or two plate glass shelves with ground edges might be fitted to the centre portion.

Your design would be much improved if the cabinet were to be mounted on a stool or base, and the cabriole legs might be allowed anything between 5 ins. and 7 ins. in height as in our sketch. Such a stool can be made up of 2 in. by $1\frac{1}{2}$ in. rails under the wing doors, the front rail widening to about $4\frac{1}{2}$ ins. in centre part of cabinet, other rails completing the stool being also of 2 in. by $1\frac{1}{2}$ in. stuff, the whole dovetailed into the leg blocks and fitted with angle braces as a stiffening. Instead of the two extra cabriole legs indicated in your sketch, two legs at front only may be fitted, and an additional full length 2 in. by 1 in. stretcher dovetailed into position in the end stool rails. The part plan (C) shows the wing doors hinged outside carcase ends, with the centre door hinged within the inner divisions. The two top rails, front and back, will be dovetailed into carcase ends and the inner divisions tenoned through them and wedged, the divisions being also tenoned right through carcase bottom. The carcase back may be framed up of 3 in.



SKETCH DESIGN FOR MAHOGANY CABINET.

by $\frac{3}{4}$ in. stiles and rails, mortised and tenoned together and grooved for plywood panels, the whole being rebated into ends and screwed and the carcase bottom dovetailed into position.

If preferred the carcase can be made in three parts, in which case the inner ends of wing cupboard is may be $\frac{3}{4}$ in. thick only, these to be screwed through from inside to the centre cupboard so that the sides or ends of the latter project slightly as the plan indicates. In this case instead of the full length centre stretcher, the stool may be fitted with a front to back stretcher to come immediately under the inner divisions. The back cabriole legs would, of course, project slightly beyond the carcase, and the cabinet top would then be finished to project to an equal extent over the carcase back. (317)

FROM A READER.—"I received your letter, etc., of the 13th inst., and feel I must thank you for the wonderful way you have answered my questions. Your illustrations and detailed instructions are very clear, and I am certain I shall not have the slightest difficulty in carrying them out."

NOTE.—To any of your friends likely to be interested, we shall be pleased to post a specimen copy of THE WOODWORKER if you will send their names and addresses to Evans Bros., Ltd., Montague House, Russell Square, London, W.C.1.

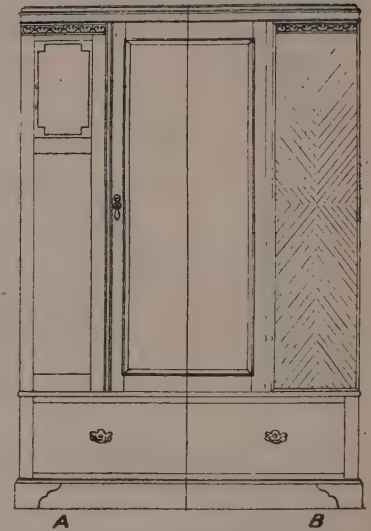
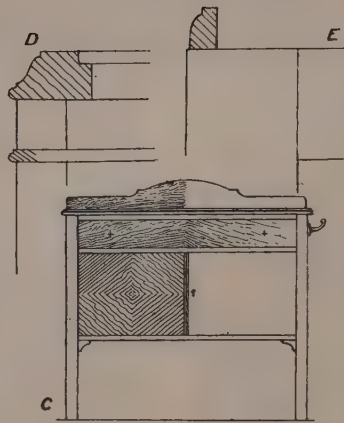


FIG. 1.—WARDROBE DESIGN (R.F.). FIG. 2.—WASHSTAND TO MATCH.

OAK WARDROBE (R.L.G.).

Wardrobe and Washstand

R. F. (Eastbourne) asks how to make a wardrobe and washstand to match the low dressing table design which was published in *THE WOODWORKER* for January, 1928.

REPLY.—We presume that a width of 4 ft. would meet your requirements for the wardrobe. The centre door might be fitted with a mirror with semi-circular heading, some portion of expense being saved by fitting a panel below the mirror to make up the full length door, as at A. An applied panel of figured ply or veneer would look well here. The wing panels in this case may be made up of a single length of figured oak to finish flush, or these wing panels might be fitted with a top clamp, shaped as shown, and so cut that the grain varies slightly in its run from the remaining length of the panel below it. The door framing would be of stiles, $1\frac{1}{2}$ in. wide, a top rail shaped from 10 in. wide and the remaining rails below 2 in. wide. Instead of the mirror a panel of figured oak could be fitted of $\frac{3}{8}$ in. thickness as for the panel below, or 7 mm. plywood could be used. A mirror, if required, could then be fitted to the inner side of door, being separately framed and screwed on to the framework. Stuff used for construction generally should be $\frac{7}{8}$ in. thickness, the cornice being made up by fitting a $\frac{1}{4}$ in. bead under the top and mounting thereon a $\frac{1}{4}$ in. section mould to detail indicated to form a receding top (D). The base would be 6 in. to 7 in. high and made up of 2 in. by 2 in. stuff dovetailed into 2 in. by 2 in. legs with angle brackets or braces and shaped pieces in the face angles, the whole being capped by a $\frac{3}{4}$ in. section mould mitred above the base and forming a shallow recess into which the main carcass will bed for screwing, as at E. The alternative suggestion at B is made up in an all plain manner with a similar cornice and base to A, but fitted with a deep drawer, full width, say, 10 in., below. Should a little relief be desired a strip length of imitation carving may be mounted as shown, whilst, if figured oak is used for the centre door, a pleasing contrast in the best taste might be effected by quartering up the wing panels.

If it is not desired to use the whole space for hanging, it is possible to fit several tiers of shelves running from back to front behind the wing panels for the placing of various small articles of attire by way of economising space. Height of wardrobe may be 6 ft. and depth back to front 1 ft. 6 in.

The washstand may be anything between 2 ft. 6 in. and 3 ft. in width to include one long drawer and two cupboard doors (C), the latter being quartered up to agree with the wing panels of B, to finish flush on face. If a panelled door is preferred, the framing may be made of $1\frac{1}{2}$ in. by $\frac{7}{8}$ in., stiles and rails moulded $\frac{1}{4}$ in. ovolo and rebated for $\frac{3}{8}$ in. or 5 mm. plywood panels to be beaded in from the back. Carcase back may be of $\frac{5}{8}$ in. thickness or of plywood. A top back rail up to 4 in. high in centre and of $\frac{5}{8}$ in. nett thickness can be fitted above the table top, which nowadays is usually of wood but may, of course, be of either "St. Anne's" or "rouge royal" quarry, if the extra expense and weight of marble is not objected to. (290)

Wardrobe Construction

R. L. G. (Omagh) wishes to make a wardrobe in oak with plywood panels.

REPLY.—We understand that your wardrobe is to finish 4 ft. wide by 6 ft. high with a depth of 1 ft. 6 in. to 1 ft. 8 in., and to include a bottom drawer. If you wish the frames to show on face as at A, the wing panels may be put together of stiles $1\frac{1}{2}$ in. wide, a top rail $2\frac{1}{2}$ in. wide and the remaining rails $2\frac{1}{2}$ in. wide, the whole being mortised and tenoned together and either grooved for 5 mm. plywood panels, or these could be rebated in and beaded from the back. In selecting the plywood a pleasing run of grain should be sought, or the panels might be quartered, whilst a $\frac{1}{4}$ in. ovolo mould could either be worked round the opening or dropped in on face for extra finish. A length of pressed detail could also be mounted on the upper rail of these panels, various designs for the purpose being generally available from the sundriesman. The centre door might have a mirror, about 18 in. wide, mounted in similar frame-

work to the wings and preferably with a bevelled edge. Or, as is frequently done at the present time, it would be possible to fit this door with a plywood panel and mount the mirror on the inside with a 1 in. bead framing screwed on. Alternatively, as at B, the framings of wings might be faced with 5 mm. plywood plain or quartered as indicated, a pilaster of about $\frac{1}{4}$ in. thickness being mounted on face of the inner edges between which the door is hinged. Whichever way these panels are finished the ends may correspond, the line of the rails being kept throughout. The ends will be dowelled or screwed to fronts and a solid top and bottom be dovetailed into position. The back can be framed up with four stiles and two rails, 3 in. wide by $\frac{1}{2}$ in. thick with plywood panels, or in a cheaper way the back may be simply munted together. The drawer casing can be separately made of frames and facing of plywood, but would be better if made solid, $\frac{1}{2}$ in. thickness for carcass and drawer front, with two 3 in. by 1 in. rails dovetailed and braced in above and a solid bottom below. The plinth will consist of eight blocks, 4 in. high by 6 in. by $\frac{1}{2}$ in., mitred at angles and shaped as indicated, to be both glue-blocked and screwed into position. The cornice mould may be made up of a separate framing of $\frac{3}{4}$ in. by 1 in., mounted with an ovolo section three-member mould mitred to recede, with a plywood false top rebated in if the recess is not required.

A wardrobe made up in this manner should be a good firm job, but if you wish for something constructed in one piece the outer stiles might continue straight to the ground and have rails of equal width with the stiles tenoned into them, the inner stiles being stubbed into position, top and bottom.

In reply to a further question vandyke brown mixed with liquid ammonia will give a wide range of oak shades when diluted with water, and the admixture of a little black should give you the colour required. It is always best to test your stain on a spare piece of the wood in use. (293)

A Period Piece

R. C. (Cavincistle) sends sketch of a mahogany wardrobe, of which he would like to know the probable age.

REPLY.—It is somewhat difficult in the absence of exact detail of cornice and base mouldings to assign an exact date to your piece. Judging by the fragment of panel mould you sent us and the design of the centre doors and the feet, the whole thing is reminiscent of Jacobean and Queen Anne styles. In those earlier times mahogany was not unknown in Great Britain but was somewhat rare, and we are inclined to think that if your piece is a genuine old one it was originally designed to match existing furniture in a room. As the general use of mahogany dates from about the period of Chippendale the fact of your piece being of this wood tends to date it as early eighteenth century, and a note of any brass work mounted thereon would assist in confirming this. Judging from your sketch the design has features which might have originally been carried out in either oak or walnut, whilst the combined arrangement for hanging in centre and shelves at ends points more to the vogue of the Georgian period. In the absence of fuller detail, we should assign the date of construction to about 1720-1750. It might be added that screws were patented about 1811, and if the "screw nails" you mention as being in the door hinges are unpointed and have not been broken, the fact would tend to confirm a much earlier date than this. We presume you refer to nails

with notched edges. It should be conceded as a great probability that the construction of furniture of various kinds, with modified detail of both Jacobean and Queen Anne periods, continued in country places to a much later date than that allotted to either of these styles. (288)

Routing for Lines and Bandings

E. S. (Herne Hill) asks how to get a uniform depth between the gauge lines when making the channels for inlaid stringing and banding.



SKETCH OF ROUTER USED
FOR INLAYING STRINGS
AND BANDINGS.

REPLY.—It is usual to use a scratch stock for this purpose. A simple way of doing this is to fix into the end of a marking gauge a bradawl blade of the same width as the boxwood lines. After gauging across the grain the scratch stock will rout out the core to an even depth. If wide bandings are to be inlaid, a piece of steel made from a broken hack-saw blade may be softened and then filed to the width of the banding. The bradawl blade may be drawn through the opposite end of the stem of the marking gauge to that which contains the marking spur, and may be removed when not required. The narrow piece of steel used for the wider bandings may be fixed into the end of the marking gauge stem by running a saw kerf in the stem to accommodate the steel and using a screw at each side to lock it in position (see sketch). The sharpened steel may then be adjusted to the thickness of the banding and secured by tightening the screws. (264)

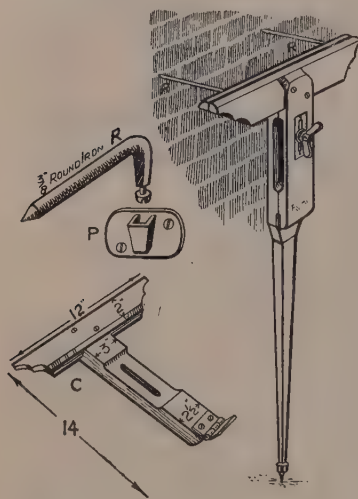
Polishing Inlaid Work

E. S. (Herne Hill) having to polish some boxwood lines inlaid in mahogany, asks how to treat strip inlay and light coloured stringing and banding to prevent the stain discolouring it.

REPLY.—Take a small pointed brush known as a "pencil brush" out of an ordinary water-colour painting box, dip the brush in self-colour cellulose lacquer and carefully coat in all the light coloured inlaid portions, taking care not to allow the lacquer to run on to the surrounding mahogany. Give the inlay two thin coats of the lacquer and when this is dry you can stain the work with either oil, water or spirit stain because none of these mediums will strike through the cellulose lacquer. After staining, lightly glasspaper the work to remove as much of the lacquer as may be necessary to leave a level surface. Then proceed to polish in the usual manner.

If you intend using a water stain you can pick out the inlaid portions with two or three coats of ordinary white polish, and this will protect the bandings. If you are using a wood dye it will strike through a polish coating but not through a cellulose coating. Some workers apply two coats of thin glue to the inlay. A bichromate of potash water stain is then used and, as this stain may be wiped fairly dry within five minutes of its application, it does not strike through the thin film of glue which covers the inlay. The glue is afterwards removed with a rag damped with warm water, a little fine glasspaper being used when the work is dry to level all up. A heavily coloured polish charged with bismark, etc., should not be used when bodying-up the work because it will discolour the inlay. (263)

Saw-Sharpening Clamp.



PORTABLE SAW-SHARPENING CLAMP.

W. S. D. (Gosport) asks for a sketch of a saw sharpening vice or clamp similar to those used by professional saw sharpeners.

REPLY.—It is some years since we illustrated such a saw sharpening device and the writer has pleasure in illustrating a light and portable leg vice that can be carried from door to door. The general sketch illustrates how the vice is held rigid, and at such a distance from the wall that it allows freedom for the

left hand and the triangular saw file. It will be noticed on looking at the enlarged details of the iron rods (R) that they are drawn out to a square taper, and that this taper fits the socket of the plate P. A large round-headed screw is fixed tightly into the square end of the rod (R) to allow sufficient clearance, so that the rod can be lifted sufficiently to allow it to be turned at right angles. When the vice is in use the pieces R R sit in their respective sockets at right angles to the chops or jaws which hold the saw. When it is not in use or when it is being carried from place to place the rods are slightly lifted up and turned close to the vice jaws; owing to the size of the round-headed nut, they cannot get lost.

At Fig. C the front chop is shown and this is made from wood $1\frac{1}{2}$ in. in thickness. The upright piece which carries the hinge is halved and glued and screwed to the cross piece. The back chop is made in a similar manner to the front chop, except that the upright is extended and tapered away to form a leg. The end of the leg is fitted with a brass ferrule and a spur. The ferrule is cut from a piece of brass piping with the aid of a hack saw, and the spur is made by screwing into the wood a $1\frac{1}{2}$ in. steel screw and filing away the head to form a point. A bolt, $\frac{1}{2}$ in. in diameter, having a wing nut and washer which engages a slotted plate approximately $\frac{1}{2}$ in. thick, will complete the gadget. The inside of each chop is slightly bevelled and the top edges are lined with a strip of thin linoleum to prevent "shrieking" when filing the saw teeth. The wood should be birch or beech throughout.

For those readers who do not require the legged type of saw sharpening clamp, simply make two chops similar to C. Hinge them together and grip them in the ordinary woodworker's vice to obtain sufficient pressure to hold the saw blade. The type and sizes given are for dovetail and tenon saws, but of course crosscut and rip saws may also be sharpened by moving the saw so as to sharpen at two operations. (313)

T. L.—Our articles on built-in furniture appeared in January, February and March.

Vandyke-Brown Water Stain.

R. P. (Tynemouth) wishes to stain an oak tea trolley and asks for a vandyke brown water stain.

REPLY.—Take $\frac{1}{2}$ lb. vandyke brown, $\frac{1}{2}$ pint strong liquid ammonia, and $1\frac{1}{2}$ pints water. Start by mixing the vandyke brown with the ammonia, then gradually add the water. Try the shade of the stain when you have added $\frac{3}{4}$ pint of the water, adding more if too dark until the lighter shade is obtained. Stain the work and allow it to dry for 48 hours, when, if not dark enough, repeat the stain. When dry ease down the rough grain with No. 1 glasspaper, dust the work and give one coat of shellac varnish. When hard, ease off with glasspaper and wax polish. Oil stains are slow-drying and the less oil used under shellac the better and more lasting the result. (309)

To Show the Natural Grain

R. W. (Jamaica) asks how to polish yacca, *lignum vitae* and mahoe to show their natural grain.

REPLY.—There is only one method and that is to use a french polish made by dissolving 8 ozs. bleached (white) shellac in 1 pint methylated spirits or like proportions. The work will have to be sized in and choked up by repeated coats of the polish until the grain is filled up, constantly glasspapering between each coat to keep it flat. This will be a costly and laborious process, but it could be cheapened and hastened by using half-and-half white hard spirit varnish and the above transparent polish. A transparent or white cellulose brushing lacquer could be used in the first stage of the work to fill up the grain, but this would have to be used fairly thin. The white polish could then be used on top of the cellulose lacquer, but not vice versa. (303)

Fading Stains

F. E. W. (Chesterfield) asks how to restore to its former colour a dark oak plant stand and bedstead which have faded through proximity to a window.

REPLY.—If your new bedstead panel is in such a position that the rays of the sun fall upon it, you will always be troubled more or less with fading. The following is one of the best methods to overcome the difficulty. Place the panel in a cupboard, box or other airtight compartment and fumigate with ammonia. This may be done by placing one pint of .880 ammonia into two large soup plates, placing one plate near each end of the panel on the floor. Leave the panel in the fume for from 36 to 48 hours. On taking it out, remove to the open air to sweeten for a couple of hours and then stain it with dark oak stain made as follows:—Dissolve vandyke brown crystals (or lump) water stain in warm water and add a little liquid ammonia. Stir well and then add one tablespoonful of hot liquid glue to act as a size or binder. Use slightly warm and stain the panel on both sides to prevent warping. Allow 48 hours for drying, then ease down the raised grain with fine glasspaper. Dust the work and give it a coat of brush polish. When dry ease down any rough grain and fill in with a suitably coloured paste filler. When the filler is dry proceed to french polish.

As to your dark oak plant stand which has faded on the side exposed to the window, you will have to strip the work to the bare wood, re-stain with a spirit stain and then repolish it; or, alternatively, glasspaper down the old polished surface and colour the job up with spirit colour. A remedy for fading has yet to be discovered in the staining of woodwork. (302)

THE WOODWORKER

VOLUME XXXIV.

SEPTEMBER, 1930.

NO. 442.

PEDESTAL GRAMOPHONE CABINET

THE illustration on this page suggests the use of walnut, but the cabinet would look very well in mahogany or oak. Another suggestion is the use of whitewood or magnolia with a black or red laquer finish, the mouldings picked out with gold.

CONSTRUCTION.—Dimensions are 1 ft. 6 ins. wide, 1 ft. 7½ ins. deep, and 3 ft. 4 ins. high. The construction has been kept as simple as possible, bearing in mind the limited facilities of the home craftsman. The legs (A) can be bought ready turned, and we give a standard stock size. These legs are 1½ ins. square above the shape and are grooved in pairs to take the ends (F) and the back (Fig. 5). These should be of sound dry timber free from any tendency to curl, or alternatively in plywood. The ends (F) and the legs should be glued together first. When set, glue in the back and fix the plywood bottom (L) by screwing up from beneath, notching it round the legs, the edges being flush with ends and back. The plywood edges are concealed afterwards by a moulding glued and pinned all round (Fig. 6). Bearers are screwed to the ends and back for the plywood motor board and shelf (K) to rest on. The shelf is fixed permanently, but the motor board (J) and tone arm board must be removable for any future adjustment to the motor. The three record shelves can be in ½ inch thick plywood also resting upon bearers fixed beneath. Fig. 4 suggests the lid construction. The corners are mitred and held together by cross tongues, the moulded top (H) being afterwards glued and pinned down. Fine panel pins should be used, punched in and the holes stopped. The lid neck moulding

is then glued to the base of the lid, being mitred at the corners. A piano hinge or ordinary butt hinge may be used and a hinged lid stay will be necessary. The doors are plain with a small centre closing bead. When fitting, cut hinges into the doors only, not into the legs. Bronze plates with drop handles are suggested as fittings and a ball catch to each door.

THE LOUVRE is simple to make, consisting of two up-rights with four slots, each sloping at 45 degrees, thin horizontals being fitted into these and the whole held in position by small screws. Specially made louvres with adjustable horizontals are obtainable.

THE TRUMPET in metal in various shapes can be bought so cheaply now that the maker will probably prefer to purchase one rather than go to the trouble of making a wood trumpet. The size of the cabinet will take the usual stock size of metal trumpet. However, Fig. 3 suggests the construction in plywood and the finished trumpet with over all sizes suitable for this cabinet. The ⅝ inch thick sides should be cut together to get them exactly alike. A cardboard template cut first would help in getting the required shape. A square block with a hole the same size as that in the tone arm is necessary, and the sides are glued and pinned to this. Two distance pieces keep the sides the

correct distance apart. Cut the thin ⅝ inch top and bottom ½ inch full and fix with glue and fine veneer pins. The edges are trimmed off afterwards. There must not be the smallest hole in the joins, so canvas is glued to the angles (Fig. 3). A few small screws hold the trumpet in position.

Manufacturers of gramophone parts usually

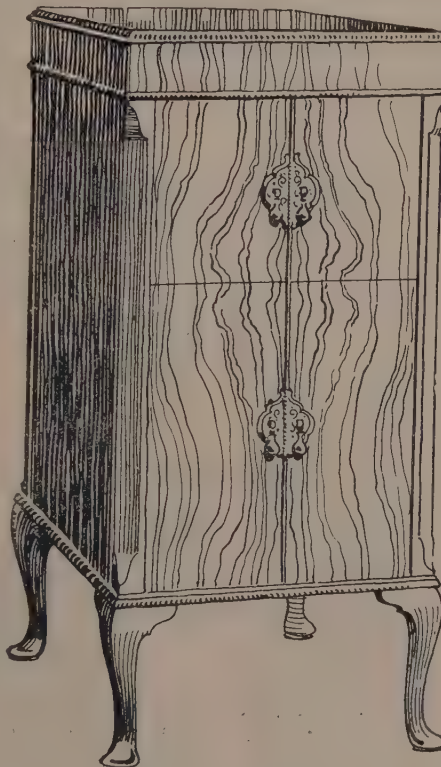


FIG. 1.—PEDESTAL GRAMOPHONE CABINET. HEIGHT, 3 FT.; WIDTH (CARCASE), 1 FT. 6 IN.

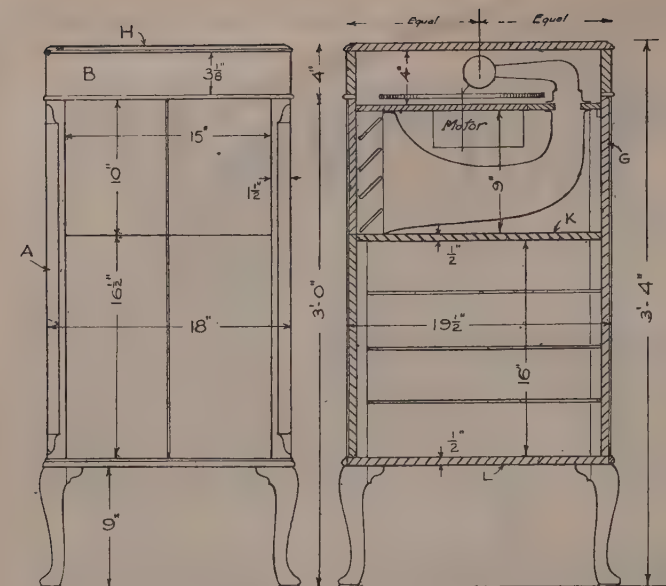


FIG. 2.—DIMENSIONED ELEVATION AND SECTION.

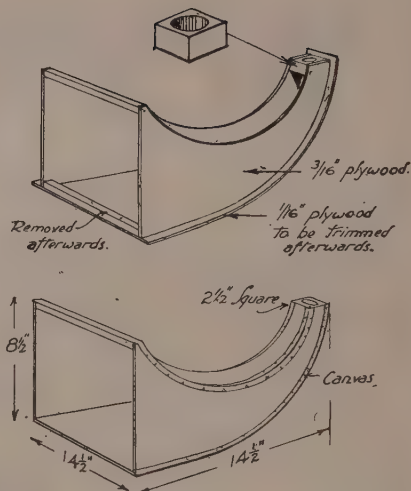


FIG. 3.—TRUMPET CONSTRUCTION.

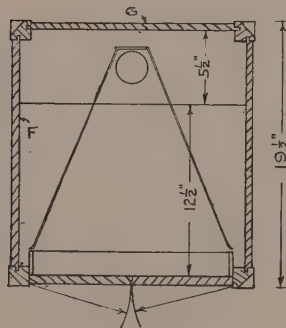


FIG. 2A.—PLAN.

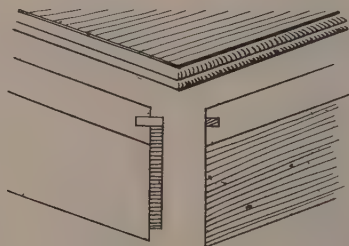


FIG. 4.—LID.

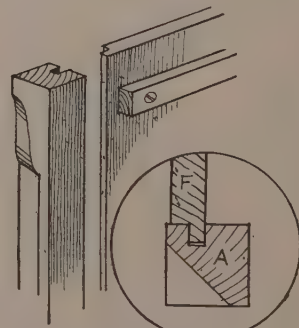


FIG. 5.—JOINT OF END AND LEG.

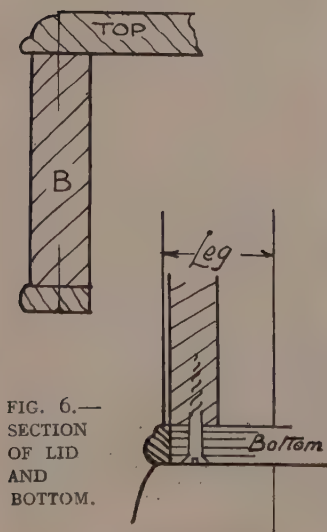


FIG. 6.—SECTION OF LID AND BOTTOM.

supply full working instructions for fitting, but a few points are worth noting. The hole that connects the tone arm with the trumpet is drilled centrally in the tone arm board, the centre of the sound box reaching near to the centre of the cabinet (Fig. 2). The point of the needle should reach exactly the spindle of the turntable, and this should be noted when fitting the

motor. A piece of paper pressed on to the top plate of the motor will give the exact positions for the drilling of the necessary holes in the motor board. See that the paper is not reversed and mark the side of the winding spindle. The motor must be placed near enough to the side for the winding handle to grip the winding spindle.

THE FINISH.—Walnut and mahogany should be stained a suitable brown colour (not reddish) and full polished. Oak might be stained a rich vandyke brown and given an antique finish. The finish for whitewood has already been suggested.

(The Cutting List is given on page 285).

IMITATION FUMED OAK is obtained by staining with liquid ammonia, which will raise the grain considerably. First damp the oak by sponging it over with warm water. This will raise the grain. When dry, thoroughly glasspaper down the work, then stain with ammonia, the application of the ammonia after the preliminary swelling of the grain preventing much of the roughness of surface.

CHIPS FROM THE CHISEL

SOME HOLIDAY REFLECTIONS.

THIS Autumn there is to be a loan exhibition of miniature objects at Dudley House, in which a number of dolls' houses will be included, as well as a good deal of miniature furniture made by apprentices, which brings us up against the perennial fascination of the doll's house which the grown up shares with the child. We have most of us stood entranced before the period dolls' houses in the Victoria and Albert Museum or before one made by a friend as a hobby, the elaborate model which glories in reproducing life in little, doing it with a thoroughness and skill which the child may envy but cannot attempt to rival. For there is such a thing as an adult's doll's house, one other sign of the power little things can have over us—the little things that are so attractive in life and art.

* * * *

What gives power to the small things, so that a man will stand and gaze at a working model like any schoolboy? We are living in an age when model-making is having a vogue of its own. We all of us know men who have made, or are making, model railways with tracks and rolling stock to scale, and who display a marvellous ingenuity and patience in introducing and perfecting details and backgrounds that bring a wonderful air of reality into their scheme. They will have their railway stations exact, down to the time tables on the walls; their signals must function under control from the signal box with the efficiency and regularity of their great prototypes, and everything must be as in real life, but possessing an interest which in real life those everyday things have not.

* * * *

The work of the illuminator and the miniaturist is a direct appeal to this love of ours for little things. To get infinite perfection into a small picture that can be tucked away into an initial letter; to show an exquisite detail in minute flowers, saints, birds and griffins decorating with dainty precision the margin of a book: this is to open up a new source of enjoyment. We become conscious of detail, concentrating our enjoyment upon it, and the greater the perfection the greater our enjoyment.

* * * *

We see the same thing in landscape. If a distant view comes to us through an archway or through trees, so that it is cut off from the rest and appears almost like a miniature, that is the moment when we look round for our cameras. Light, too, is much more interesting when it comes to us broken up and twinkling in silver points upon some dancing leaves than when we see it streaming at midday upon an open road; and the sky seen as spots of light through leafy foliage impresses us with its colour and variety in a different, more intimate way than when we see the whole vault of heaven unhindered above us. It may be that detail to be thoroughly enjoyed

must be selected for us and put easily within the reach of our finite minds. Whatever the reason we all act in much the same way before little things, whether they be miniature furniture, model railways or points of noonday light.

* * * *

For the woodworker on holiday there is an opportunity for putting in odd moments on the study of trees which ought not to be missed. It is astonishing how little some town dwellers know about the structure and characteristics of the commoner trees, and it is equally astonishing how much useful knowledge about them can be picked up in the course of one holiday by the man who keeps his eyes open on a country walk. All he needs by way of equipment is a practical handbook on trees (there is a good one by Edward Step called *Wayside and Woodland Trees*, published by Frederick Warne & Co., at 7s. 6d.). He will need to examine the general structure of a tree as shown in a complete illustration, for all trees have certain structural characteristics which enable the trained eye to recognise them from afar. It adds to the interest of a landscape if you can name the line of trees rearing up against the skyline as a row of poplars; or can say that the symmetrically shaped tree, the effect of whose branches and foliage is as though ladies at Court were dropping curtsies and a flow of pretty green draperies were pendant from their hands, is a lime. It is strange how much happier we are when we can give anything a name, can label it in our minds as something distinct from its general species. If, for instance, instead of seeing the poplars distantly on the skyline, we are near to them and can hear the breeze sighing and rustling through them as it always does through poplars, however light the moving current of air, and can watch the changing flicker of the leaves on their long stalks, we have seized far more of the poetry of the occasion if we are able to associate them with a name than if we are compelled to wonder vaguely what trees these are.

* * * *

But as well as general structure we must know a certain amount of detail. For this we need our handbook again, which will give us the shapes and markings of leaves, and some description of the flower, fruit and bark of the tree to enable us to pursue our work of recognition. It is a fascinating game, and one that can be continued over into the winter months when we are home again. For in winter we shall see the trees stripped of their foliage and be dependent on structure and bark alone. It is the final test of our knowledge and of our powers of observation, and not nearly so difficult as one would imagine. For by the time winter comes we find that we have made our own the essentials of tree structure almost unconsciously, and can murmur with some confidence before some hoary skeleton of winter: "Yes, that is an elm." (1353)

WITH EXTENSION FLAPS



FIG. 1.—3 FT. BY 2 FT. 6 IN. DINING TABLE,
EXTENDING TO 4 FT. 3 IN.

2
TIMBER.—Japanese oak and a weathered finish would make a very pleasing article and well repay any extra cost and labour. Alternately, one of the Empire hardwoods could be used. Of course if the table is to match the sideboard, the same wood and finish will be employed. When open it is 4 ft. 3 ins. by 3 ft.; with flaps down, 3 ft. by 2 ft. 6 ins. The over all height is 2 ft. 5½ ins.

CONSTRUCTION.—The home worker should experience little difficulty, as the joints are simple. The top and flaps are most important and, if in oak, well seasoned, quartered wood should be used. Let it stand in a warm place for a few days to dry thoroughly, allowing the air to reach both sides. Before cutting to the oval shape, the top (E) and flaps (F) should be jointed and hinged together. Rule joints are preferable and are shown in Fig. 2. Ordinary butt joints will serve, but are less refined in appearance. In moulding the rule joints do not make the square too fine or the flaps may split when in use at the hollow. Proper rule joint hinges should be used, probably three to each joint being necessary. Well level and sandpaper, cut to the oval shape and well round the edges. The true oval, as marked with string, is inclined to be pointed. Make it a little blunter, say, about $\frac{1}{4}$ inch on the swell of each quarter segment. The legs (A) are from 2 inch square stuff, finishing about $1\frac{1}{4}$ ins. when planed. Place together and mark off the position of rails (G) and stretcher (C), after which they can be bevelled off to the octagonal section in Fig. 2, stopping and running out where rails and stretchers meet the legs.

THE RAILS (G) are tenoned to the legs, being set in $\frac{1}{8}$ in. The end rails will need notching for the passing of the slides (D). Before assembly, grooves could be worked for the buttons which fix the top.

THE STRETCHERS are halved together at the centre and tenoned to the legs as shown in Fig. 4. An alternative stretcher is suggested in Fig. 3.

THE TOP (E) might be buttoned or pocket screwed to the underframe. Buttoning is best as this allows for any shrinkage.

Finally the guide (B) for the slides is glued and screwed centrally beneath the top, taking care that the screw points do not come through or cause any bumps to spoil the surface of the top (Figs. 2 and 5).

THE FINISH will, of course, match that of the sideboard. If the table is made as an independent article, a dark oak stain and antique rubbed finish would be a good alternative to a weathered finished job.

TO ACQUIRE fluency in reading French, there is nothing so useful as the weekly paper *La France*: 8 pages, 2d., from Newsagents, or from Evans Brothers, Ltd., Montague House, Russell Sq., W.C.1.

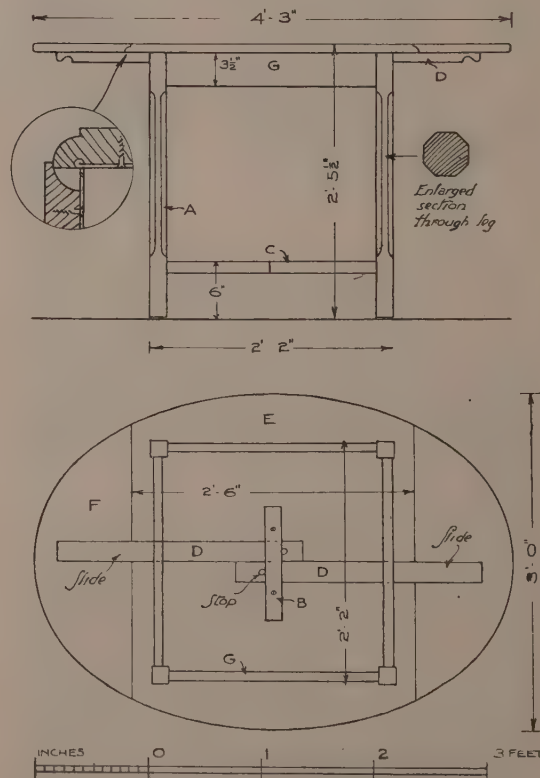


FIG. 2.—DIMENSIONED ELEVATION AND PLAN,
WITH SCALE. INSET SHOWS RULE JOINT.
NOTE ALSO ENLARGED SECTION OF LEG.

The Cutting List is as follows:—

		Long. ft. ins.	Wide. ins.	Thick. ins.
A 4 Legs	...	2 4	1 1/2	1 1/2
B 1 Guide	...	1 0	1 1/2	1 1/2
C 2 Stretchers	...	3 0	1 1/2	1 1/2
D 2 Slides	...	2 2	2 1/2	1 1/2
E 1 Top	...	3 0	31 1/2	2 1/2
F 2 Flaps	...	2 6	10 1/2	2 1/2
G 4 Rails	...	2 1	3 1/2	2 1/2

All the above sizes are net. Allow for cutting and paring. (341)

"DESIGNS FOR MODERN BEDROOM SUITES."—Complete suites, the whole range comprising wardrobes, bedsteads, dressing tables, dressing chests, millinery cabinets, chests of drawers, chairs, cheval glass, dressing stool, cupboards, etc. Price 2/6 net. Evans Bros. Ltd., Montague House, Russell Square, London, W.C.1.

ENCLOSED CUTLERY BOX

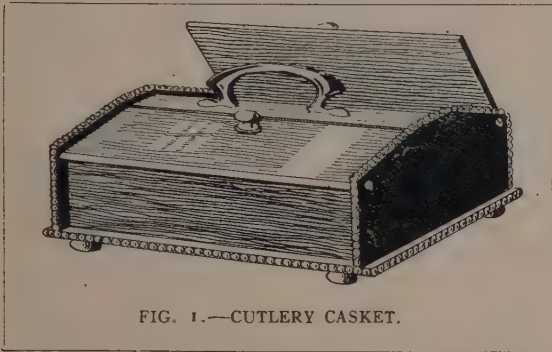


FIG. 1.—CUTLERY CASKET.

THE cutlery box sketched at Fig. 1 is made with a bottom, two sides and two ends, between which a division is fitted to divide it into two portions. A handle is fitted over the division, and the two portions are provided with covers which entirely close the box.

THE SIDES are 12 1/2 in. long by 3 in. wide; division, 12 1/2 in. long by 4 in. wide; top, 12 1/2 in. long by 2 in. wide. The ends are shaped as at Fig. 2, and grooves 1/2 in. deep are cut in them, as at Figs. 3 and 4, to receive the sides, division and top.

THE BOTTOM is 13 in. long by 9 in. wide, screwed or pinned to the bottom edges of the sides, ends and division, and four small ball feet are fitted under it.

THE COVERS are 12 in. long by 3 1/2 in. wide. They are hinged by driving fairly long fine screws through the ends (Fig. 5), to enter the covers near the front edges and allow them to be folded back as shown by the dotted lines in Fig. 2. Small fillets are fixed across the ends to provide rests for the covers, while a metal handle should be fitted to the top and small knobs to the covers.

Any of the cabinet woods in 1/2 in. thickness

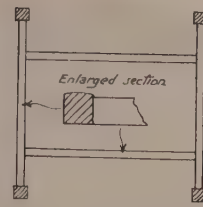


FIG. 3.—ALTERNATIVE STRETCHER.

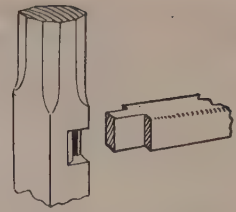
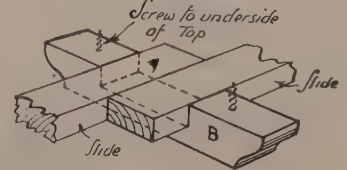


FIG. 4.—STRETCHER JOINT.

FIG. 5.—DETAIL OF SLIDES AND GUIDE.



could be used to make the box, and 1/2 in. half-round turned beading should be used to ornament it. (349)

NOTE.—To any of your friends likely to be interested, we shall be pleased to post a specimen copy of THE WOODWORKER if you will send their names and addresses to Evans Bros., Ltd., Montague House, Russell Square, London, W.C.1.

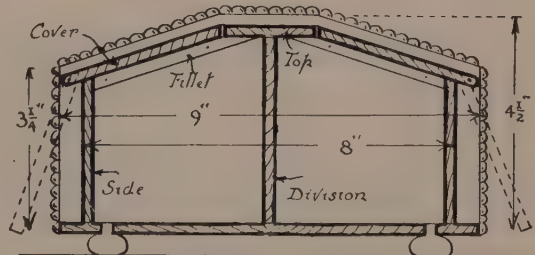


Fig. 2.

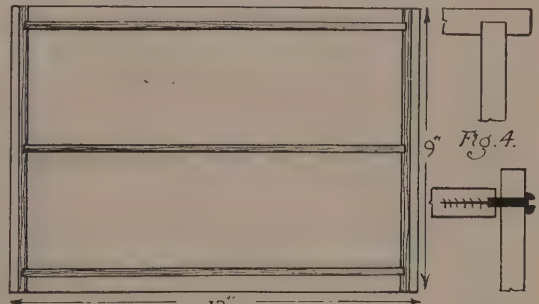


Fig. 3.

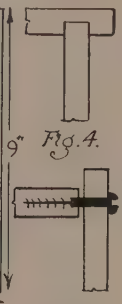


Fig. 5.

FIGS. 2 TO 5.—DETAILS OF CUTLERY BOX.

THE HOME WORKSHOP

A SMALL portable workshop is illustrated in Fig. 1. It is of light and simple construction, inexpensive and strong if made to the following instructions. While the dimensions given are by no means fixed, they are suggested to meet most ordinary requirements and to suit the strengths of materials given to form a convenient sized workshop.

DIMENSIONS.—The length is 9 ft. (which will accommodate a bench about 6 ft. long); width 6 ft.; height to eaves 6 ft. 6 ins. and height to ridge 8 ft. 3 ins. The necessary side and end frames are shown in Figs. 2 and 3. They are composed of a 3 in. by 2 in. deal framing, the various parts being housed $\frac{1}{2}$ in. deep and securely nailed together with 5 in. round wire nails. Care should be taken to keep the frames square and the pieces flush on the outside to form a level surface for the $\frac{3}{4}$ in. thick tongued and grooved matchboarding.

The two side frames are made 8 ft. $4\frac{1}{2}$ ins. long by 6 ft. 2 ins. high, and both frames may have window openings framed in if desired, although only the front side is shown prepared for this purpose.

The $\frac{3}{4}$ in. matchboarding should be nailed securely to the framing with 2 in. oval nails and allowed to extend 4 in. above the top rail in order to fill up the gap made by the depth of the roof purlins.

THE ENDS are framed together as shown in Fig. 3, one having a doorway framed in to the dimensions indicated. These frames are 6 ft. 2 ins. high to eaves and 7 ft. 11 ins. high to ridge by 6 ft. wide, the joints at the ridge and eaves being half-lapped instead of housed. When covering these and the frames with match boards it is most essential that the frames should be kept square or considerable difficulty will be experienced when assembling the shed. Also when covering the end frame with the doorway a 1 in. margin should be allowed round the opening to form a rebate for the door.

Having gone so far the frames may be securely fastened together by means of three $\frac{3}{4}$ in. bolts and washers in each corner and the site levelled up to receive the structure. It is advisable to have a course of brickwork or heavy wood sleepers on which to place the shed.

THE FLOOR is then formed by placing a series of 4 in. by 3 in. joists across the bottom rails of the side frames at a distance of about 12 in. apart, and if two joists are placed nearly together at the centre the floor may be made in two sections by cutting the floor boards to half the length of the shed. This makes the heavy floor easier to handle in the event of removal.

A SIMPLE PORTABLE ROOF is made by placing two purlins, 9 ft. 6 ins. of 4 in. by 2 in. material on each side into the slots provided in the match-

boards on the end frames. These are placed about 9 ins. from the ridge and eaves respectively, and cleats are made about 9 in. long by 3 in. by 2 in. by 2 in. and securely nailed to the top rails to support the underneath side of the purlins, as in Figs. 4 and 6. The roof may then be made by nailing $\frac{3}{4}$ in. matchboards to battens of 3 in. by $1\frac{1}{2}$ in. material, these being placed at a suitable distance apart to rest on the top

edges of the purlins as shown. This method prevents the roof slipping down and is not so heavy to handle as nailing the matchboards direct to the purlins. The roofing boards should be cut about 4 ft. 3 ins. long or sufficient to allow a overhang at the eaves of about 3 ins. The roof is then best made watertight by covering with roofing felt, and the joints again covered with strips of felt or wood as in Fig. 1.

A DOOR of the ledged, braced and batten type will be required, and this may be made from the same kind of matchboarding as that used for covering the side frames with ledges and braces of about 4 in. by $1\frac{1}{2}$ in. material.

WINDOW FRAME.—A suitable workshop window frame with ventilator is shown in Fig. 3. It is mortised and tenoned together from 4 in. by 2 in. red deal, and has a transom above which is placed a casement made from "ready run" sash stile material to which it is hinged to open inwards.

The window frame is then screwed to the sides of the opening provided in the framework. The joint on the outside is finished off by covering with a sort of architrave made from matchboards about 3 in. wide with chamfered edges.

The whole of the woodwork should be treated on the outside with solignum or creosote to preserve it and give it a better appearance.

THE BENCH may be made to suit individual re-

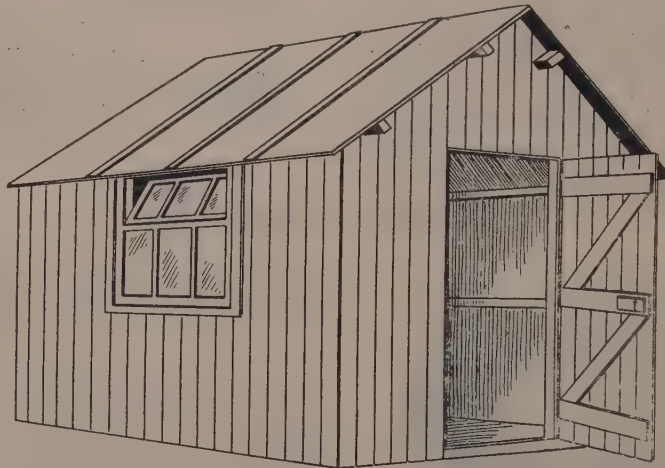


FIG. 1.—THE HOME WORKER'S PORTABLE WORKSHOP. SIZE, 9 FT. BY 6 FT. HEIGHT (OVER ALL), 8 FT. 3 INS.

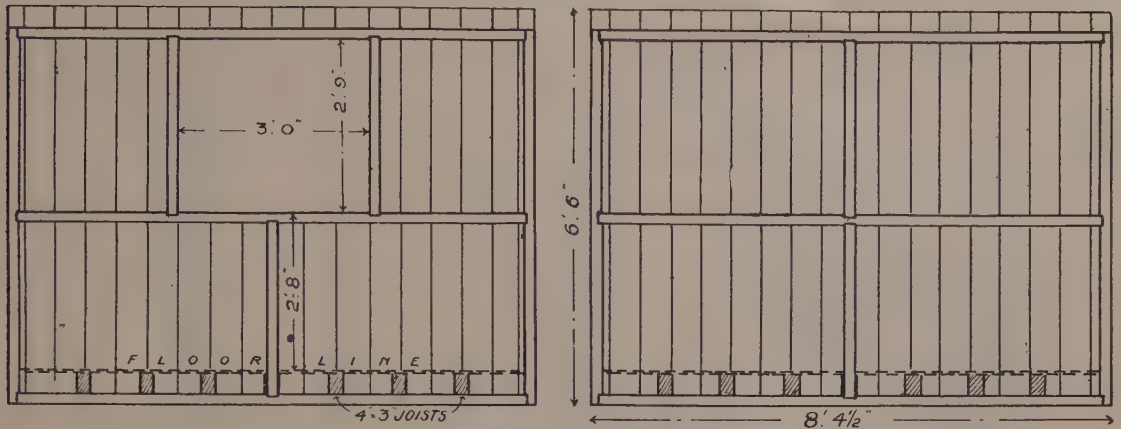


FIG. 2.—ELEVATIONS OF SIDE FRAMES.

quirements, but a generally useful size will be found to be about 6 ft. long by 2 ft. 9 in. high and 20 ins. wide, and is composed of two framed legs as in Fig. 5. These are mortised and tenoned together from 4 in. by 2 in. deal and securely glued and pinned. A tenon is arranged on the back end of the top rail to fit into the middle rail of the side framing, while the front legs may be fixed by means of a dowel into the floor. The bench top is formed by screwing a piece of good deal or hardwood, about 11 ins. wide and 2 ins. thick, through the underneath side of the legs, and a well is formed by placing a piece of material about 9 ins. by $\frac{1}{2}$ in. thick between this and the wall.

(See Fig. 6 and Cutting List on next page.)

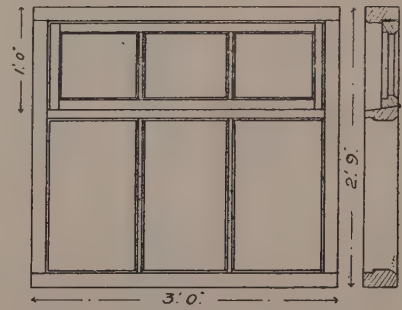


FIG. 3.—ELEVATION AND SECTION OF WINDOW AND VENTILATOR.

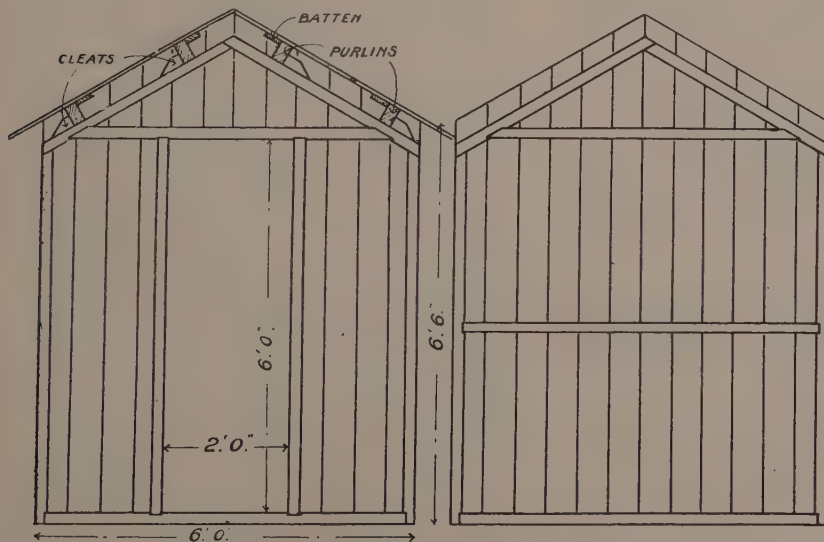


FIG. 4.—ELEVATIONS OF END FRAMES.

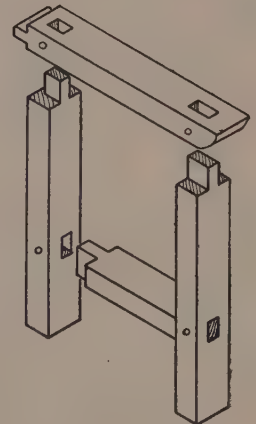


FIG. 5.—BENCH LEGS.

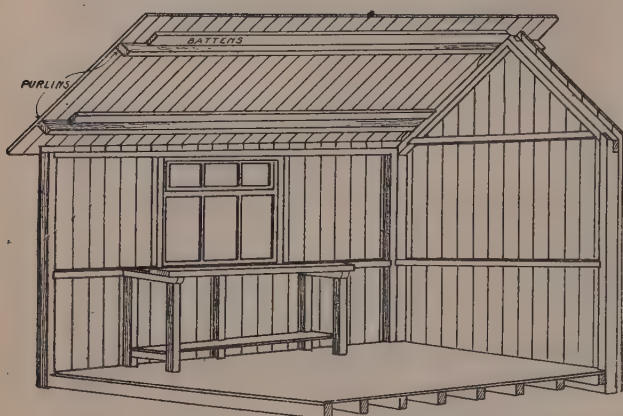


FIG. 6.—INTERIOR VIEW, SHOWING ROOF CONSTRUCTION AND BENCH ARRANGEMENT.

CUTTING LIST:—		Long. ft. ins.	Wide. ins.	Thick. ins.
6	Rails	8 6	3	2
5	Rails	6 0	3	2
13	Posts	6 2	3	2
4	Top rails	4 6	3	2
8	Joists	6 0	4	3
4	Purlins	9 6	4	2
4	Battens	8 6	3	1½
3	"Squares," ¾ in. tongued and grooved match-boarding.			
½	square, ¾ in. tongued and grooved floor boards.			
	Bench top	6 0	11	2
	Bench well and shelf	12 0	9	½
	Bench legs	18 0	4	2
	Window frame	15 0	4	2
	Sash stile	8 0	1½	1½
	Sash bar	5 0	¾	1½
	1 pair 15 in. "T" hinges; 1 dead lock; 9 square yards roofing felt; 30 lbs. 2 in. oval nails; 6 lbs. 2 in. floor brads.			
				(336)

LIGHT WAXED FINISH FOR OAK

FOR a comparatively simple finish on oak which, without materially darkening it, emphasises the natural beauty and flash, the following process may be recommended. First remove all grease marks and finger marks, wipe the work over with raw linseed oil and, rubbing off the surplus oil with a dry rag, allow it to stand from two to twelve hours. Give it a coat of brush polish made with bleached shellac and allow this to harden thoroughly; glasspaper down with No. 1 or No. 0 glasspaper, as may be required, and finish with the beeswax and turpentine polish, which is applied by friction. If the oak is required to be finished as light a colour as possible, do not use oil. Linseed oil has a tendency to darken the shade of the oak, and the longer the work is left oiled before the application of the polish so will the tendency be for it to assume a darker tone.

Brush polish is made by dissolving 6 ozs. of orange or brown shellac, 1 oz. of crushed resin and 1 oz. of gum mastic in one pint of methylated spirits. For a lighter brush polish such as for the light oak mentioned above, use the same recipe but substitute *bleached* shellac for the orange or brown shellac. White polish for the rubber can be made by adding 6 ozs. bleached shellac to one pint of methylated spirits; brown polish for rubber use by adding 6 ozs. of orange or brown shellac to one pint of methylated spirits. Brown and orange shellac are practically the same thing, except that they vary slightly in colour.

Wax polish is made by placing shredded beeswax in turpentine and stirring it until dissolved. The jar or tin in which the dissolution takes place may be placed in a hot water bath (glue kettle fashion) but in no case must it be placed on a fire or gas jet. Make your water hot first and, if necessary, remove the wax compound and its jar and again heat your hot water. Some

workers add a little resin to the wax compound, others a little white wax such as composite candle wax. If your experience is limited stick to the simple beeswax and turpentine.

Brush polish is applied with a gilder's mop brush, and the varnish spread over the work in the direction of the grain. Do not work up your varnish by laying into it with the brush as though you were painting, but spread it evenly, not too freely and not labouring it too much. If the varnish appears too thick and apt to be ridgy, thin the mixture with a little more spirits.

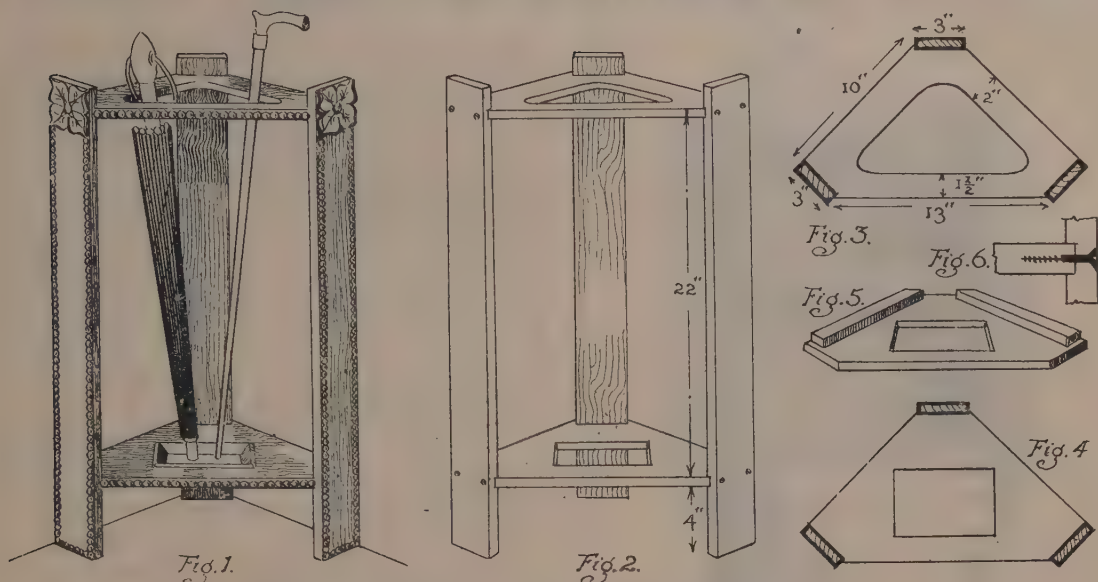
Rubber polish is applied with a pad of cotton wadding or a pad made out of an old fine texture woollen singlet, the pad being covered with a piece of fine rag or cambric.

Wax polish is vigorously rubbed on to the work, and into the pores of the work, with a suitably open-grained rag. The surplus wax is rubbed away with a clean rag, then a clean cloth or piece of felt used to polish up the surface. (335)

NATURAL GRAIN.—A tendency in present day furniture finish—especially with oak—is "natural grain." In this connection we are interested to see that Messrs. Ronuk, Ltd. (of Portslade, Sussex) have recently brought out, under the name of "colrun," a wood dye which yields a rich transparent polish. The dye dries within three hours, and all that is then necessary is a brisk wax-polishing with ordinary ronuk. Colrun is supplied in shilling bottles and may be had from any store at which your ronuk is bought.

THE LONDON COUNTY COUNCIL proposes to hold another series of courses in preparation for the first and second handicraft (woodwork) examinations of the City and Guilds of London Institute. The classes will be held weekly from September, 1930, to May, 1931 at the Shoreditch Technical Institute, Pitfield Street, Hoxton, N.1. Communications should be made to the Principal at this address.

LIGHT CORNER UMBRELLA STAND



SKETCH AND DETAILS OF LIGHT CORNER UMBRELLA STAND.

THIS article requires only three legs, 2 ft. 4 in. long by 3 in. wide; top and bottom, 1 ft. 4 1/2 in. long by 9 1/4 in. wide; four battens, 10 1/4 in. long by 1 in. wide, all by 1/2 in. or 3/4 in. thick; two carved ornaments or pateras, 3 in. square; 9 ft. of 1/4 in. half-round turned beading, and 3 ft. of 3/8 in. or 1/2 in. similar beading, together with a suitable draining pan.

The top is shaped as at Fig. 3, and the bottom as at Fig. 4, the legs being grooved 1/4 in. deep (Fig. 6) to receive the corners of the top and

bottom. The joints must be carefully made as the strength of the stand depends entirely upon them; when fixed they are glued and screwed. The battens are screwed across the back (under the edges of top and bottom), as at Fig. 5, to strengthen them on the cross grain. The carved ornaments are fixed to the top ends of the front legs, the 1/4 in. beading is fixed around the edges, and the larger beading is fixed to the edges of the top and bottom. An oblong draining pan 6 in. by 4 in. is suitable. (354)

NEXT MONTH'S WOODWORKER.—For the next three months we have specially in preparation a series of designs for occasional living-room and bedroom use. Two of these will appear in October: one an upright cabinet sideboard, the other a fitted bachelor's wardrobe. Other designs in readiness for next month are a gate-leg table, a medicine cupboard and a smoker's cabinet. Articles specially written for the craftsman on tools and tool manipulation are in readiness, and we have in preparation a number of designs for light carpentry and cabinet work and also several for outdoor structures.

This month, with the tallboy chest of drawers, we complete our light three-foot bedroom suite. To new readers, we may mention that the dressing table article appeared in August and the wardrobe in July. We also complete the modern living room suite, designs for which have been appearing in alternate months. The designs have been: draw-extension table (April), 4 ft. 6 ins. sideboard (June), and chairs (July). The secretaire now published is the last item of the suite.

As the holiday season is now approaching a close, make sure that your newsagent has a definite order for the regular delivery of your copy of THE WOODWORKER.

"BUREAU AND BOOKCASE DESIGNS."—The revised edition of this book of designs includes (among other new features) a Queen Anne bureau bookcase, 3 ft. wide by 6 ft. 6 ins. high; a beautiful Sheraton escritoire, based on an old model; a modern dwarf bookcase (with or without doors), 3 ft. 6 ins. wide; a living room bureau, 2 ft. 3 ins. wide by 3 ft. 6 ins. high; an elegant Queen Anne bookcase, 2 ft. 10 1/4 ins. wide by 6 ft. high; a Jacobean bureau; two correspondence bureaux; roll top desk; pedestal writing table, sectional bookcases, revolving bookcase, etc. Price 2/6 net.

"STAINING AND POLISHING."—This volume, one of the most popular of *The Woodworker Series*, has (with the exception of two or three chapters which required little modification) been entirely re-written. New features are the chapters dealing specifically with the treatment of different timbers, whilst prominence is given to such processes as the cellulose finish, the acid finish, french polishing by machinery, cellulose dipping, etc. A useful index of over a thousand references is added. (Price 3/6 net). Evans Bros., Ltd., Montague House, Russell Sq., W.C.1.

BOOKSTAND WITH MAGAZINE CABINET

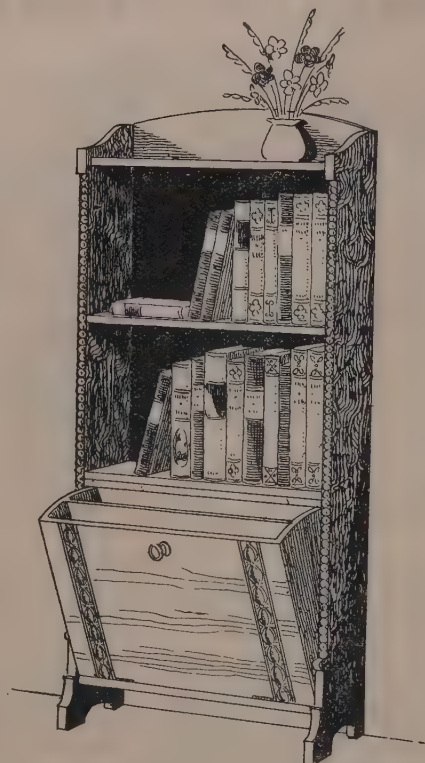
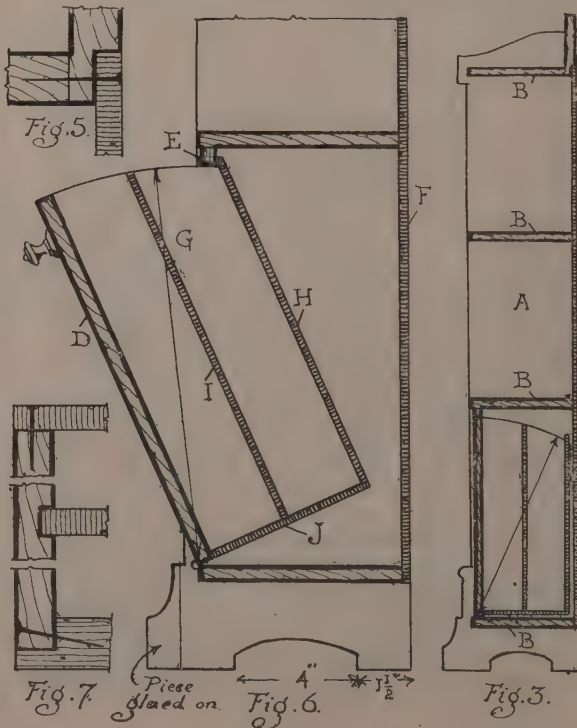
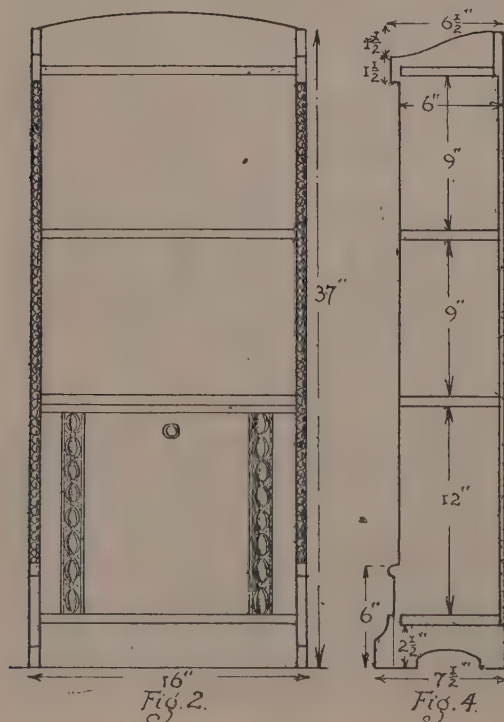


FIG. 1.—BOOK AND MAGAZINE STAND.
37 INS. BY 16 INS.

THIS bookstand is a compact and very convenient piece of furniture for present day use, and is made with three shelves and an enclosed magazine cabinet. Any of the usual woods in $\frac{1}{2}$ in. or $\frac{3}{4}$ in. thickness could be used for the construction, the following being a list of the material required:—Two sides (A), 3 ft. 1 in. long by $6\frac{1}{2}$ in. wide; four shelves (B), 1 ft. 4 in. long by $5\frac{1}{2}$ in. wide; top back rail (C), 1 ft. 4 in. long by $3\frac{1}{2}$ in. wide; front of magazine cabinet (D), 1 ft. 3 in. long by $11\frac{1}{2}$ in. wide; stop (E), 1 ft. 3 in. long by $\frac{1}{2}$ in. wide (all of the $\frac{1}{2}$ in. or $\frac{3}{4}$ in. selected material); plywood back (F), 2 ft. 11 in. long by 1 ft. 4 in. wide; two sides of magazine cabinet (G), $11\frac{1}{2}$ in. long by $5\frac{3}{8}$ in. wide by $\frac{3}{8}$ in. thick; plywood back (H), 1 ft. 3 in. long by 10 in. wide; division (I), 1 ft. 3 in. long by 11 in. wide; and bottom (J), 1 ft. 3 in. long by 5 in. wide. To this list add a 5 ft. length of $\frac{1}{2}$ in. half-round turned beading and 2 ft. of $1\frac{1}{4}$ in. or $1\frac{1}{2}$ in. by $\frac{1}{4}$ in. embossed moulding.

The sides are shaped as at Fig. 4, and are made up to the required width at the bottom by glueing on small pieces 3 in. long by 1 in. wide. The back edges of the sides are rebated $\frac{1}{2}$ in. by $\frac{1}{4}$ in. for the top back rail, and $\frac{1}{4}$ in. square for the ply back, whilst the shelves are either mortised and tenoned or dovetail-grooved into them.

The top back rail is shaped from $3\frac{1}{2}$ in. in the middle to $2\frac{1}{2}$ in. at the ends. It fits into the rebates at the top ends of the sides, and is itself rebated across the bottom edge to receive the plywood back. Both the rail and plywood are



nailed in the rebates, and nails are driven through the back and rail into the top shelf, as at Fig. 5. The stop (E) is fitted between the sides and is fixed under the front edge of the third shelf with a couple of screws.

The front of the magazine cabinet is hinged to the bottom shelf. The sides are shaped as at Figs. 3 and 6, and are rebated into and nailed to the front (see Fig. 7). The back is screwed to the back edges of the sides to project $\frac{1}{4}$ in. at the top, and the division is grooved in. The bottom is fixed to the bottom edges of the sides.

Before the cabinet is fitted, the stop should be removed; the hinges are fixed, the cabinet is swung into the position shown (Fig. 6) and the top is screwed on so that the projecting top edge of the back rests against the back edge of the stop. A suitable knob should be fitted to the front of the cabinet.

The embossed moulding is grooved across its face, and the turned moulding is fixed to the edges of the sides. (355)

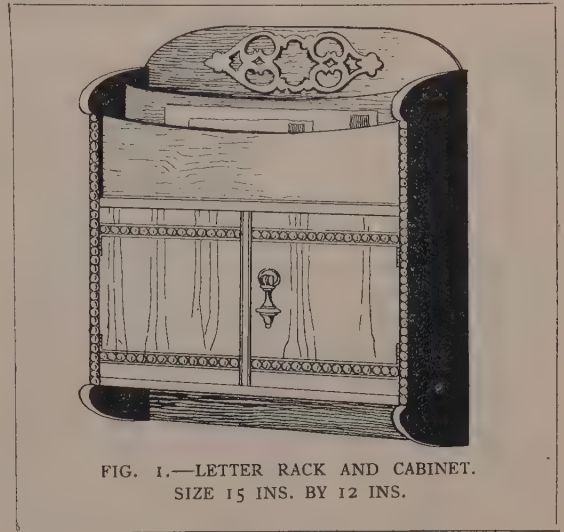


FIG. 1.—LETTER RACK AND CABINET.
SIZE 15 INS. BY 12 INS.

Letter Rack and Cabinet.

THIS letter rack and cabinet made as sketched at Fig. 1, besides providing an open rack for letters, is also fitted with an enclosed cabinet which will be found very convenient for letters of a private nature, account books, etc. The rack and cabinet will look well in oak, or any of the cabinet woods of $\frac{3}{8}$ in. thickness.

THE SIDES, which are 1 ft. 1 in. long by $5\frac{1}{2}$ in. wide, are shaped as shown at Fig. 4, and the two shelves, which are $11\frac{1}{8}$ in. long by $4\frac{1}{2}$ in. wide, are either dovetail grooved or tenoned into them. The front of the rack is $11\frac{1}{8}$ in. long by 3 in. wide, the division $11\frac{1}{8}$ in. long by 4 in. wide, and the back, which is of plywood, is $11\frac{1}{8}$ in. wide by 1 ft. 3 in. high.

THE BACK is rebated into the back edges of the sides, and the front and division of the rack are grooved in as at Fig. 5. Before these parts are fixed up, the top edges of the front and division should be shaped out $\frac{1}{4}$ in., and the top edge of the back should be rounded down to meet the sides, while, if the shelves have been dovetailed into the sides, the front and division should be fitted in place before they are fixed.

THE DOORS are solid pieces of wood, beaded and rebated together in the middle (see Fig. 6), and ornamented with strips of half-round turned beading grooved across the face, the edges of the grooves being bevelled (Fig. 7). The doors are hinged, and fitted with a bolt and lock in the usual way, while it may be found convenient to fix a shelf to the interior of the cabinet. For ornamentation, strips of half-round beading are fixed to the edges of the sides, and a fairly large fret could be fixed at the top of the back. (350)

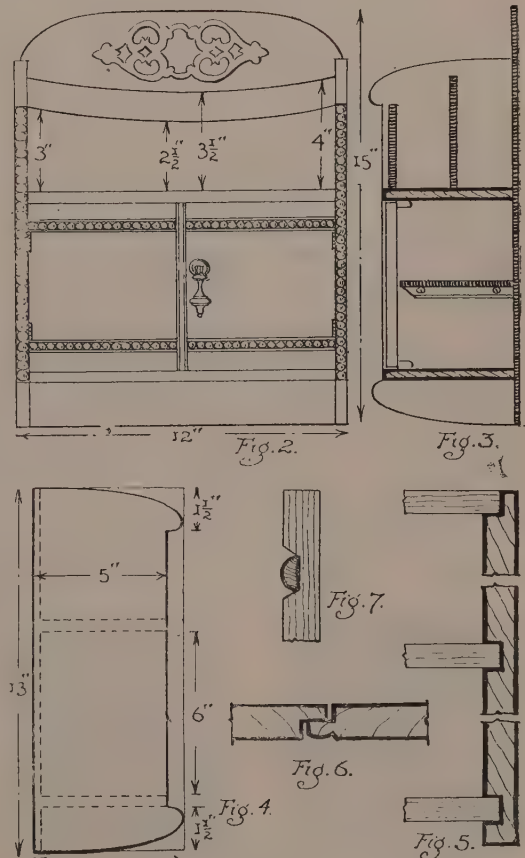


FIG. 2.—ELEVATION. FIG. 3.—SECTION.
FIG. 4.—END VIEW. FIGS. 5, 6 AND 7.—
DETAIL SECTIONS.

THE OCTOBER NUMBER.—Have your copy definitely on order.

THE CRAFTSMAN

THE TREATMENT OF NEW PLANES

FORTY years ago it was the general practice to take a new beechwood plane to the chandler's or oil stores to have it soaked in raw linseed oil. The oilman generally weighed the plane minus the blades and then proceeded to tie a piece of strong twine to it, after which he threw it bodily into the drum of linseed oil.

In a week or ten days the owner, usually an apprentice, would call and the oilman would withdraw the plane from the drum by hauling in the twine. After the plane was drained the oilman again weighed it and charged the owner for the oil absorbed plus his labour. The plane was left for a few days to allow for oxidation of the oil, after which the blade, etc., was adjusted and the plane put into action. Another method was to putty up the mouth of the plane and then to pour raw linseed oil into the escapement, after which the plane was allowed to soak up the oil, which was, if necessary, replenished once or twice.

Nowadays the plane makers decry such treatment, and at least one firm issues a danger label printed in red which distinctly states that if the plane be soaked in oil their warranty ceases. The accepted treatment at the moment is to wipe the plane over thoroughly with a freely charged linseed oil rag every day for from seven to ten days, after which the plane is fadded-in with french polish. One is apt to refer to work done in the "good old days," so why this alteration in treatment?

First of all let us examine the end of a plane and we shall see that, if a careful selection of timber has been made, the annual rings and the medullary rays will run approximately as shown at Fig. 1. In other words, the blocks from which the plane is made has been quarter sawn. If cut as at Fig. 1 the sole stands up to the wear better and the tendency for shrinkage is minimised because it is more or less in the direction of the arrow. To illustrate this more forcibly look at Fig. 2, where the effect of circumferential shrinkage is shown, and it will be obvious that, if the plane block were cut like this, the side of the plane and its sole would soon cease to be at right angles and this shape would be practically useless when used in conjunction with

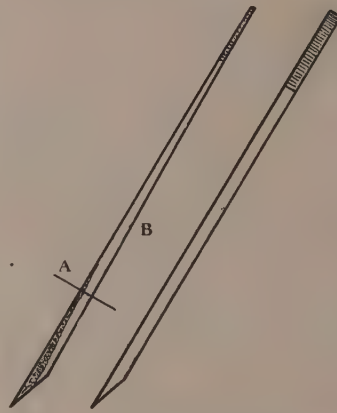


FIG. 3. FIG. 4.—PLANE IRONS.

the shooting board. Soaking the plane in oil has a tendency to swell the wood and cause undue distortion, whereas if the plane is gradually oiled the pores are filled gradually as the oxidation of the oil takes place. The application of a little french polish as a finishing process further seals the pores and makes for cleanliness. Swelling the wood with oil also causes the frog (or the part on which the blade beds) to become twisted, and this produces "chattering" and imperfect cutting when the plane is in use.

Another cause of chattering is a faulty blade. Most planes are fitted with a tapered blade, as at Fig. 3, consisting of a small piece of steel which is forged on to a wrought iron blade, the idea being that it is easier to grind half-and-half steel and iron than to grind a solid steel blade. Many of these irons are left rough forged at the back (B) and consequently they do not bed accurately on to the frog of the plane. Furthermore, as this type of tapered blade is ground away to, say, the line A, it increases the opening at the mouth of the plane. This, of course, is obvious owing to its tapered length. A much better type of blade is the gauged iron depicted at Fig. 4; in this case the iron is parallel in thickness and the back of the blade is ground and polished perfectly flat and out of winding. All American pattern iron planes have this gauged type of iron to ensure that they bed evenly on the frog and to prevent any increase in the opening of the mouth as the blade is worn shorter in length. This method is, of course, theoretically correct. (348A)

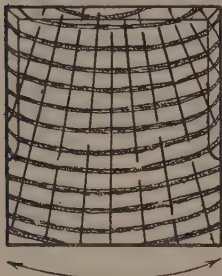


FIG. 1.—END GRAIN OF WOOD PLANE.

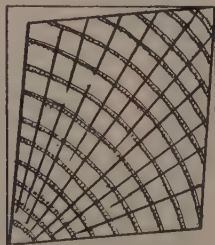


FIG. 2.—SHOWING THE EFFECT OF SHRINKAGE.

"CABINET CONSTRUCTION" deals specifically with the separate and distinct detail parts which go to make up pieces of ordinary furniture. The contents comprise joints in carcase work, cabinet and table tops, table and chair legs, cabinet doors (including barred doors and leaded lights), drawer making (including rails and runners), cornices, cappings and shapings, facing, etc., the rule joint, cabinet backs, veneering, inlaid bands and stringings, working mouldings by hand, setting-out boards, metal fittings, and examples of period furniture details and metalwork. (Price 3/6 net). Evans Bros., Ltd., Montague House, Russell Square, W.C.1.

HOME CARPENTRY

CONSTRUCTION OF OAK LINEN OR BLANKET CHESTS

READERS who have followed these chapters on home carpentry will have noticed that all the suggested articles have been made up out of the softer woods such as pine, deal, canary, etc. An experiment in one of the hardwoods may now be considered. Blanket and linen chests are at the moment very fashionable in the United States, and in nearly every trade school one finds two or three of these chests made up in either oak or cedar. The work is less difficult than one would imagine, as this consists chiefly of (1) boring and dowelling, (2) planing end way on the shooting board, (3) bevel moulding with the ordinary plane, (4) simple channel moulding, and (5) hingeing.

Fig. 1 illustrates a simple chest which is made of oak framework measuring approximately $\frac{3}{8}$ in. in thickness. This wood should be obtained ready machine-planed in boards, after which the maker can saw it up to the required sizes. The six panels for the front and the back and the two end panels are of 5 mm. plywood, ready veneered on one side with figured oak. The three panels for the top are best procured out of $\frac{3}{8}$ in. planed figured quartered oak.

Here the question may be raised as to what is quartered oak. In the best quality of quartered (or wainscot) oak the annular rings run practically at right angles to the face of the board, as at Fig. 2. The timber will have a tendency to keep flat and straight, but will shrink slightly in its thickness, and the flash or figure will be very marked owing to the medullary rays cropping out on the face of the board. In the inferior qualities of quartered oak the divergence between the line of the medullary ray and the face of the board is greater than 15 degrees; the flash or figure is less marked, and the wood therefore cannot be described as "quartered" or wainscot oak. To obtain the best figure it is necessary that the faces of the boards coincide as nearly as is possible with the direction of the medullary rays (R).

The bottom of the chest is of 5 mm. plywood, but this piece is not oak-faced. The bottom is fitted into grooves prepared to receive it in the ends and sides, and after its insertion a series of glue blocks will support and stiffen up the work (Fig. 9). The ornaments shown on each panel are each held with four screws, the heads being countersunk so as to leave all flush and level inside. The advantage of relying upon screws instead of glue for these ornaments is that it will allow of them being easily removed if at any time the panels require repolishing. The ornaments and lid action are stock sizes.

The sizes of the actual chest described are 3 ft. 4 in. long, 18½ in. wide, and 1 ft. 10 in. high on carcase. The lid, which is of $\frac{3}{4}$ in. wood, will slightly increase the finished height.

All the top horizontal rails of the carcase are 2½ in. wide, and the bottom horizontal rails 3 in. in width. The inner or muntin uprights (M) which are fixed in the back and front frame

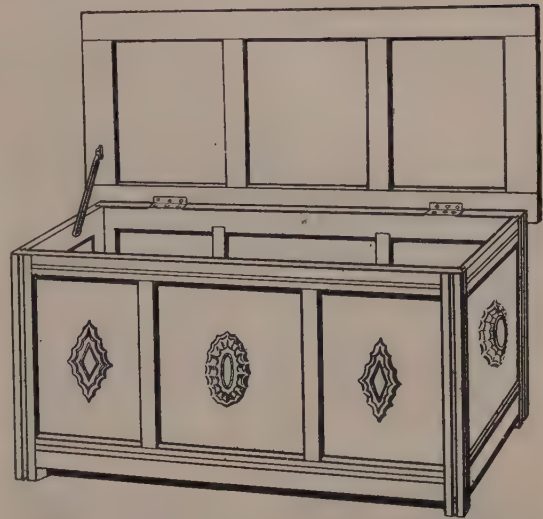


FIG. 1.—TYPICAL OAK LINEN CHEST. SIZE, 3 FT. 4 IN. BY 1 FT. 6½ IN. AND 1 FT. 11 IN. HIGH. (SIZES MAY, OF COURSE, BE ADAPTED).

measure 1½ in. in width. The long rails of the lid are 3 in. wide, the end rails 3½ in., and the inner rails of the lid 2½ in. Hinges are of the 3 in. brass butt type, and the plated semi-automatic lid stay is 10 ins. long.

The worker should commence by taking a piece of scrap plywood or a thin pine board and set out thereon the full size of a front frame and the full size of an end frame to the particular sizes he may require. To work out the channel moulds, take two pieces of rectangular wood (say, baywood) about 5 in. by 2 in. for A and B, Fig. 3, and one piece of wood (D) for a handle. Notch out the two pieces to receive the handle piece and then screw this scratch or saw stock together. Fix a piece of broken saw blade having fairly large teeth on to the improvised stock (as at C) and with this home-made gadget proceed to saw a nick as shown in the sketch. After each piece of framing has been so treated fix a new and thicker piece (B) on to the stock and work into the framing the second nick (E).

Now pare out the waste wood with the $\frac{1}{4}$ in. chisel as suggested in the sketch and plane up the channel with a Preston metal bull nosed plane which is $\frac{3}{8}$ in. wide on its face. This small plane is a most useful tool, and can be bought at any tool shop for about 4s. By adopting this method for working the channel moulds and the grooves for the plywood panels, the worker need not go to the expense of purchasing a plough plane. Admittedly it will take slightly longer to work your channel, but the saw (C) will give a much cleaner job on cross grained oak than a plough plane. The channel moulds can be worked by this method in 15 minutes each, and the stock of the saw plane is always useful for similar jobs

and for channelling with the grain when inlaying stringing.

The same method can be used for working the 5 mm. grooves into the edges of the timber by adjusting the saw blade (C) with suitable pieces of packing wood (B), sawing the nicks and paring out between the saw kerfs with a $\frac{3}{16}$ in. chisel.

Little need be said with regard to setting out for dowelling with the exception that muntin rail (M, Fig. 8) has its shoulder kept back so as to allow for cutting away the bevelled moulding on the edge of the horizontal rail. The two dowels in the pieces (M) are $\frac{1}{4}$ in. diameter, whereas all the other dowels are $\frac{3}{8}$ in. diameter. Fig. 8 shows also how the ends of the chest are glued to the front and back frames by grooving and fitting a piece of plywood tongue.

It is important that the horns shown should be left on the frames until the chest has been glued up, because these horns both at the top and

bottom form excellent cramping pieces to engage either G cramps or wooden handscrews. After cramping, the top horns are cut off, the bottom horns forming the feet of the chest.

The hinges are fitted on to the carcase at a distance of six inches from each end (Fig. 4). To gauge the thickness and width of the hinge the marking gauge will have to be set first as at Fig. 6 and secondly as at Fig. 7. The thickness of the hinge is marked on the wood as at G, Fig. 5, but in this particular case of hingeing it will be found that the thickness of the wood will agree with the width of the hinge, and that therefore the recess will be cut through as at R, Fig. 5. Note also the slight bevel on the recess at Fig. 4.

After marking out for the hinges make a few saw kerfs (K, Fig. 5) which will assist the removal of the wood during the chiselling operations and pare away the wood as shown. Screw down one of the hinge flaps (as at Fig. 4) to the

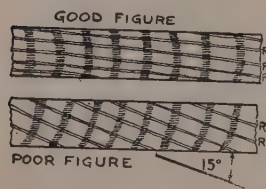


FIG. 2.—OAK FIGURE.

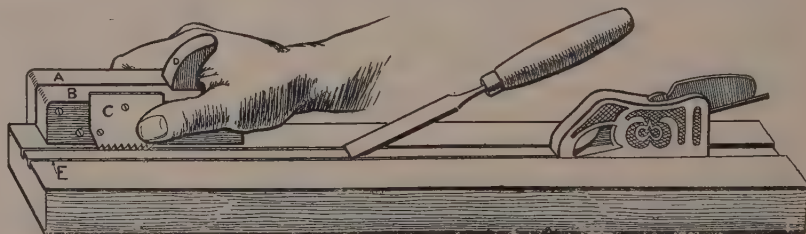


FIG. 3.—HOME-MADE CONTRIVANCE FOR WORKING THE CHANNEL MOULDS; SHOWING ALSO PARING WITH CHISEL AND USE OF BULL-NOSED PLANE.

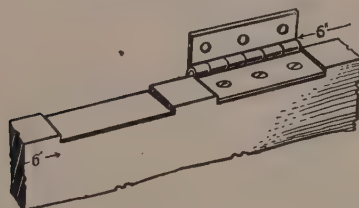


FIG. 4.—THE HINGE RECESS.

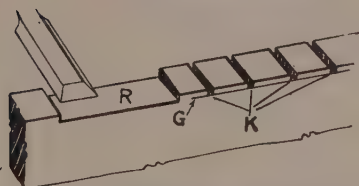


FIG. 5.—DETAIL OF HINGEING.

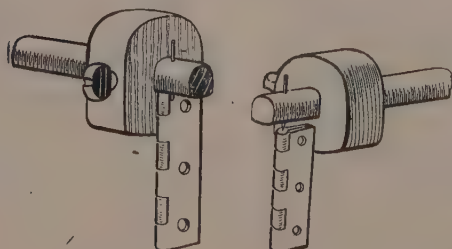


FIG. 6.—GAUGING (1).

FIG. 7.—GAUGING (2).

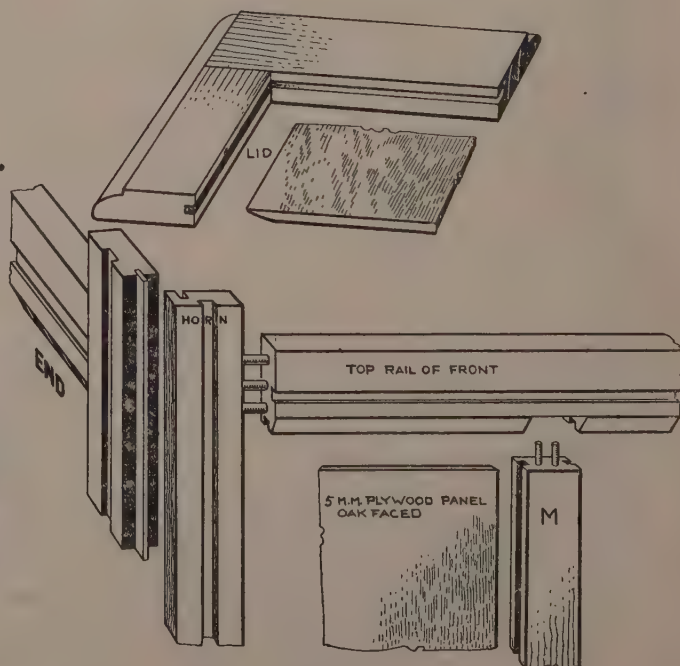


FIG. 8.—GENERAL METHOD OF CONSTRUCTION.



FIG. 9.
FITTING THE
BOTTOM.

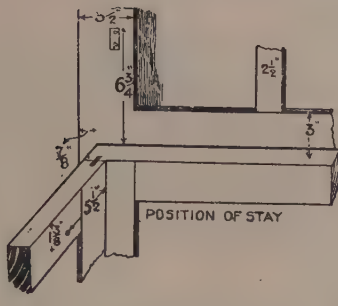
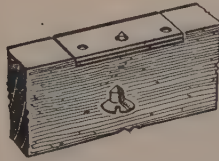


FIG. 10.—DETAIL OF LID STAY.

FIG. 11.—METHOD OF
SCREWING HINGES.



top edge of the chest framing. To assist in finding the correct position of the first or centre screw that has to be put into the lid cut a couple of screws and point them as at Fig. 11 (inset). Place one of these dwarfed screws into the centre hole of each hinge and close the hinged flap as illustrated.

Take the lid of the chest, place it in position, measure it so that it stands with an equal margin all around the carcase, and then with your closed fist give the top a good smart bang. This will leave the imprint of the dwarf screw points on the wood and will ensure correct hingeing at the first attempt. Keep your dwarf screws for the next job.

The position for fixing the ten inch semi-automatic lid stay is given at Fig. 10, and its action is as follows. On lifting the lid, the stay locks the lid in an open position, and to close the lid the operator simply *opens the lid one inch higher*, when the stay immediately by its cam action puts itself out of gear, thus allowing the lid to be closed down.

The work is finished with a Jacobean oak stain. It is wise policy to stain and polish the plywood whilst it is in two large sheets, after which it may be cut up with a fine toothed saw to the required panel sizes. The work is first stained, after which it is given a brush coat of orange polish. When this is dry and hard, the plywood is eased down to a smooth surface with No. 1 glasspaper. The work should then be well bodied up with alternate applications of the polishing rubber and a couple of thin coats of brush polish. When hard the surface is eased down with No. 0 glasspaper and treated with a beeswax polish *well rubbed in*.

Two coats of cellulose lacquer should be applied to the inside of the chest to make it water, worm and moth proof. The lacquer may

be applied with a brush and then rubbed down with No. 0 glasspaper and finished off with a rubber or cellulose finishing solution. (331)

HICKORY.—There are almost an equally large number of species of hickory in America as there are of ash. Their production is generally in scattered localities, chiefly extending in much about the same area as this latter wood. Perhaps one only of these numerous varieties is received in this country; this is the shapbark hickory. Moderate quantities only are received, for there is no very extensive trade. It is usually imported in round logs of about fourteen inches diameter, and the wood is specially notable for its elasticity, and also for its strength and toughness. In a similar way to ash, the second growth is more esteemed than the first. As explained in other chapters, this is the further growth that springs up from the root after the original tree has been felled. The wood is highly valued for making shafts and for other coach builders' work. For the handles and shafts of tools, such as axes, picks, hammers and similar implements, it is esteemed, also for golf shafts and such purposes in the manufacture of necessities for sports. The wood may be distinguished by its uniform light brown colour, somewhat coarse grain and its straight, even texture.

NEW READERS.—To avoid disappointment in regular delivery, readers are urged to have a definite order for THE WOODWORKER placed with their newsagent. Back numbers can usually be had (price 7d. post free) on application to the publishers: Evans Bros., Ltd., Montague House, Russell Square, W.C.1.

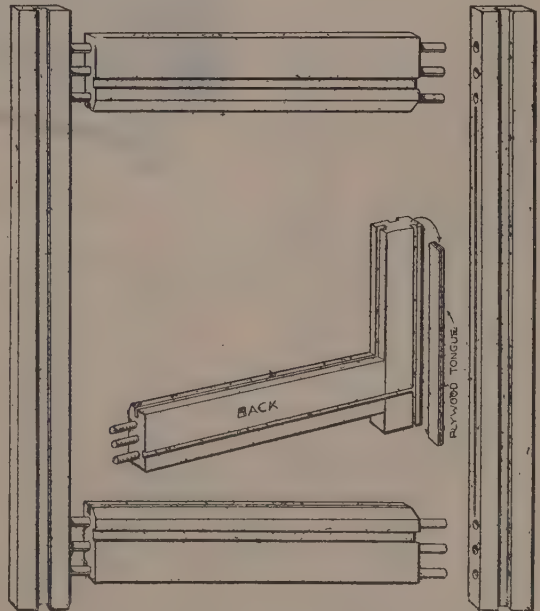


FIG. 12.—METHOD OF MAKING END FRAME.

LIVING ROOM SUITE IN OAK

4.—THE SECRETAIRE

THIS design for a secretaire will be found neat, attractive and compact. Contained within the fall writing flap at the top is a separate carcass of pigeon-holes for stationery and correspondence. The cupboards underneath provide ample accommodation for newspapers and periodicals, or might be divided for gramophone record albums. Alternatively this cupboard could house a wireless receiver.

CONSTRUCTION.—First shape the legs (A) as in Fig. 6, scribing the positions of the three reeds, each $\frac{1}{4}$ in. wide, on each face. Work these to the required section with a suitable gouge or spindle. Notch the legs back on their top squares to allow the stool rails (B, C and D) to run over, as in Fig. 3. The front and end rails (B) and (C) respectively, are mitred over the legs at the front, whilst at the back the rail (D) is taken into the end rails (C) and screwed through. Finally, glue the stool rail to the legs and screw through. When the carcass is completed this stool might be pocket screwed to it up through the rails, or buttoned to the carcass bottom.

Next we must proceed with the carcass construction. Select good straight-grained stuff for the ends (M). Trench these across grain at the top to a depth of $\frac{1}{4}$ in. for the carcass top (M.) Fig 9 gives all constructive details, and a glance at this illustration will show that a rebate, $\frac{1}{4}$ in. deep, will be needed on the extreme bottom edge of each end (M) for the bottom board (O), but all these rebates must be stopped 1 in. from the front edges of the ends. Groove similarly to a depth of $\frac{1}{4}$ in. for the writing shelf (K) in each end, cutting a mortise half an inch deep for the tenons of the rail (J) under the writing shelf.

Rebate the back edge of each end for the carcass back (S) to a width of $\frac{1}{4}$ in. and a depth of $\frac{1}{4}$ in., and stop these rebates under the back ledge (P). Proceed next to work the front edge of the writing shelf to the enlarged section given in Fig. 8. When the writing flap is completed, work a similar section on its bottom edge, so that the two mouldings will interlock accurately when the flap is down in the writing position. Gauge and cut a tenon $\frac{1}{4}$ in. long on the rail (J) to

enter the mortises already cut in the ends. Work a hollow right through on the top face to allow for the swing down of the writing flap. The correct radius for this hollow is found from the centre pin of the back flap hinges to the corner of the flap.

The skeleton carcass could now be constructed by cramping the top (N), mid-bottom (K), rail (J) and bottom (O) to the ends. The stool frame is then fitted to the carcass bottom as previously described.

The back ledge must be rebated on the bottom edge for the carcass back, and might be fitted between the ends and fixed by screwing through to the top before screwing on the back. Alternatively this ledge could be carried over and mitred with the ends, or tenoned between the ends and cramped up with the job. Finally fit the back and screw through to the top ends and bottom board.

PIGEON-HOLE CONSTRUCTION.—The pigeon top, bottom and ends (Fig. 7) are allowed to be through-dovetailed with each other. The over all sizes and details are given in Figs. 2 and 5. The middle shelf (X) is allowed to be taken into the ends (V) to a depth of $\frac{1}{4}$ in., whilst the vertical divisions (Y) must also be housed into the top and shelf to a similar depth. No drawers are allowed for, but one might easily be fitted between

the shelf and bottom.

A DOOR (L) is provided in the centre and might be hinged on a small pair of brass butts and fitted with a small cupboard lock. Between the division and ends at the top a shaped piece (Z) might be fret-cut and fitted. Fix a stop behind the door, and glue and pin to the carcass top and writing shelf. No back to the pigeon-holes will be needed, as these fit against the carcass back.

WRITING FLAP CONSTRUCTION.—The stiles and rails (Fig. 10) should first be mortised and tenoned together. Tenons, $1\frac{1}{4}$ in. in length are allowed on the rails; cut mortises to a similar depth in the stiles. Work a groove on the inside edges of the stiles and rails to receive the tongues of the writing panel (Q), as in Figs. 2 and 10.

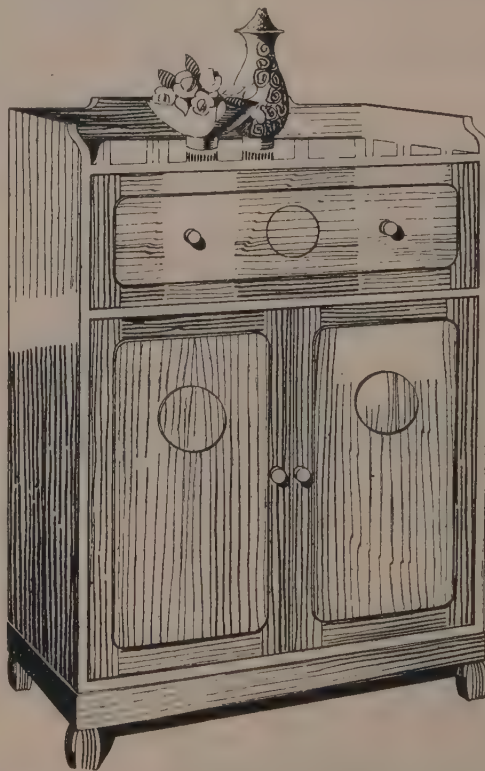


FIG. 1.—OAK SECRETAIRE FOR LIVING ROOM.

Fret-cut the face panel (T) to the required shape, glueing and pinning to the frame. Apply the circular patera $\frac{1}{8}$ in. in thickness to the panel and stop the pin-holes with wax. The section required on the bottom edge has already been dealt with when dealing with the writing shelf in the carcass construction.

A good stout pair of back flap hinges will be needed to hinge this flap to the writing shelf, and a suitable pair of stays or quadrants for support must be obtained from the local hardware shop.

Take care when hingeing the flap to see that it swings quite accurately in the hollow worked in the rail. It might be added that, when fixing the face panel to the frame, two blocks might

be fitted between the panels (T) and (Q) to take the turned knobs shown in Fig. 5. The pins of the knobs could then be taken through the panel (T) and fox-wedged from the front into the blocks, which might be about 3 in. square and $\frac{1}{2}$ in. thick.

Complete the flap by introducing a till lock with a brass thread escutcheon in the centre, or a stiff bullet catch at either end on the top edge would make an effective substitute. If desired the panel (Q) might be lined with baize or billiard cloth or, as intended, just dry shined.

DOOR CONSTRUCTION.—The stiles and rails (see

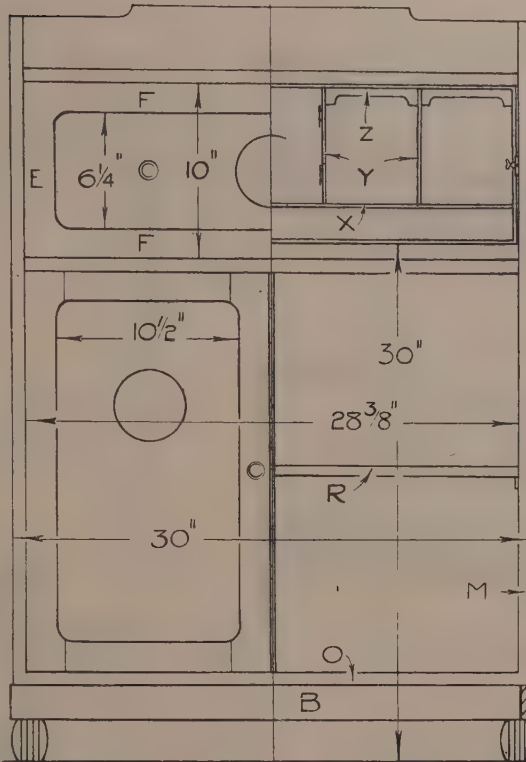


FIG. 2.—FRONT ELEVATION, WITH SCALE.

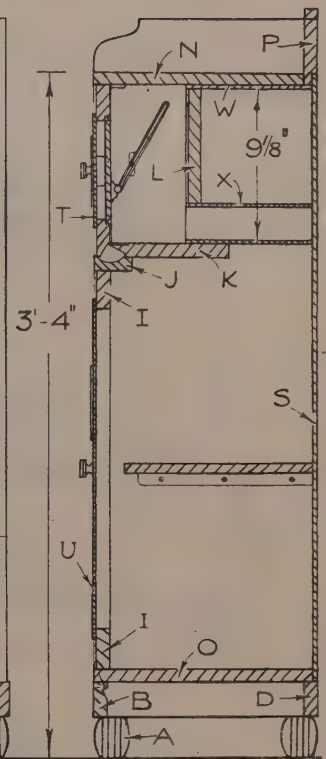


FIG. 3.—END SECTION.

Fig. 10) should be of mild, straight-grained stuff. Gauge and cut tenons, $\frac{1}{4}$ in. long, on the rails and cut mortises to correspond in the stiles. On the centre meeting stiles (H) work a bead and rebate.

Take the quartered oak-faced plywood panels (U), shape as required and glue and pin to the frames. The circular panels, $\frac{1}{8}$ in. thick, might be just pinned to the panels; stop the pin-holes.

Hinge each door on a pair of 2 in. brass butts, not acorn, and fix a bullet catch on the bottom edge of each door near the centre. A small bolt will be required top and bottom of the left-hand

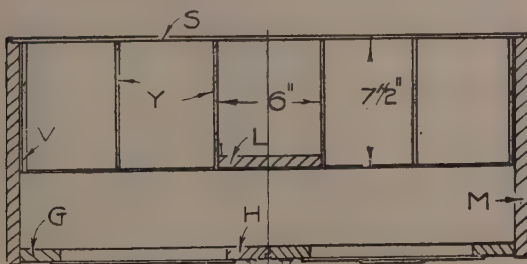


FIG. 4.—SECTIONAL PLAN.

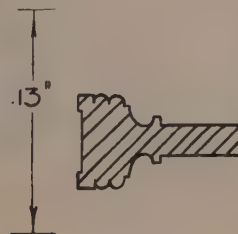


FIG. 5.—KNOB.

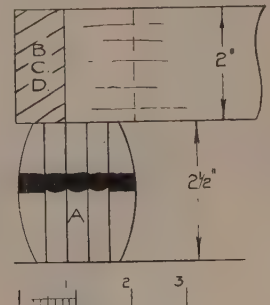


FIG. 6.—LEGS.

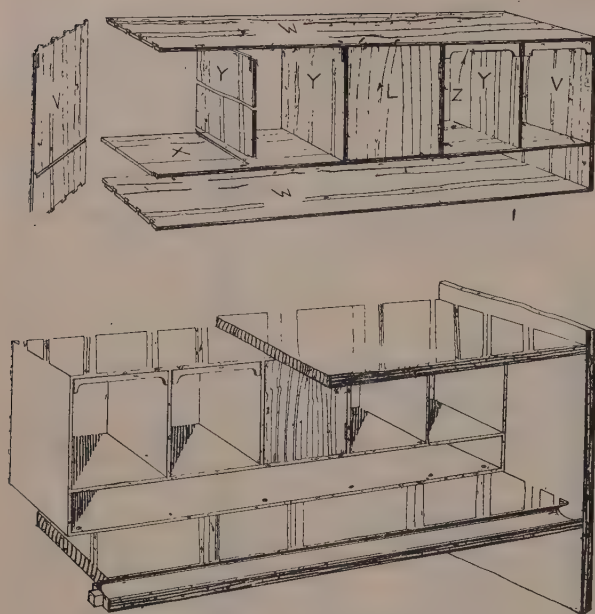


FIG. 7.—DETAIL OF STATIONERY CASE.

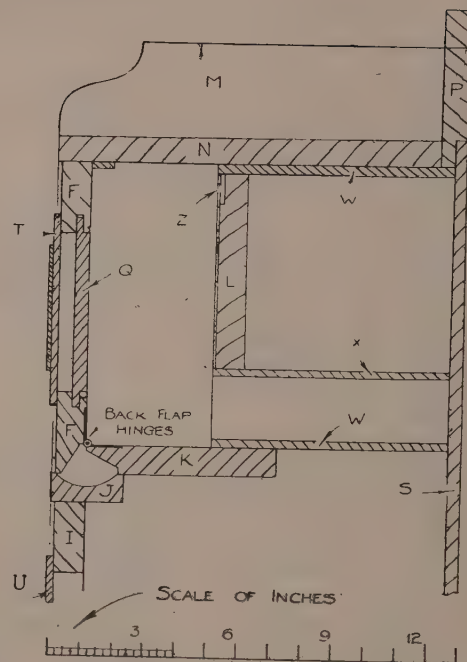


FIG. 8.—SECTIONAL END VIEW.

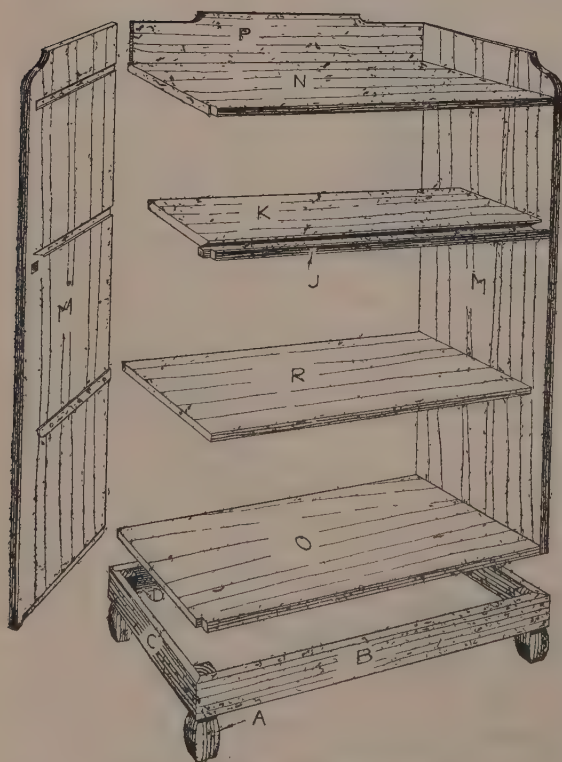


FIG. 9.—CARCASE CONSTRUCTION.

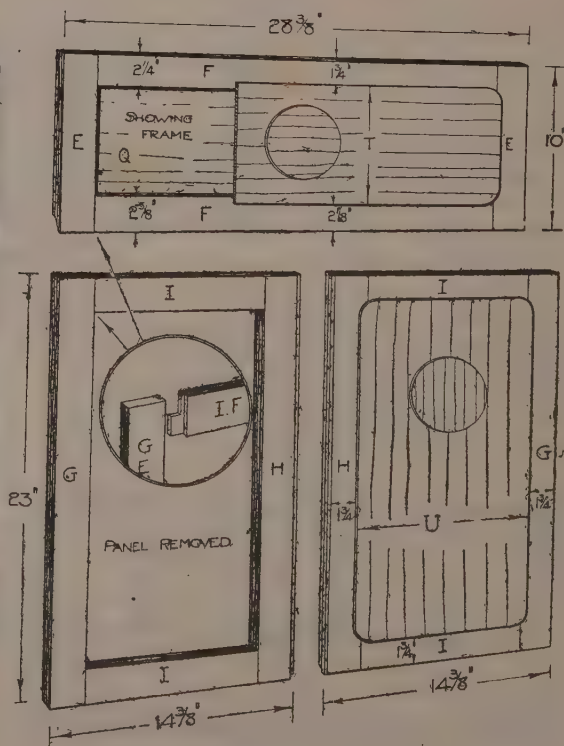


FIG. 10.—CONSTRUCTION OF DOORS AND FLAP.

door. The knobs might be fitted and fixed similarly to those on the fall flap. Fix the shelf (R, Fig. 2) on to its bearers, leaving it dry and pinning only.

Clean down the job with a fine glass paper and leave for polishing. Blue oak would be a suitable finish, but the ordinary nut-brown finish or natural waxed effect would look equally attractive.

CUTTING LIST :—

	Long.	Wide.	Thick.
	ft. ins.	ins.	ins.
A 4 legs	0 4½	2½	2½
B 1 stool rail	2 6½	2	¾
C 2 end stool rails	1 1½	2	¾
D 1 back rail	2 5½	2	¾
E 2 flap stiles	0 10	2½	¾
F 2 flap rails	2 2½	2½	¾
G 2 door stiles	1 11	2½	¾
H 2 door stiles	1 11	2½	¾
I 4 door rails	2 2½	2½	¾

	Long.	Wide.	Thick.
	ft. ins.	ins.	ins.
J 1 rail	2 5½	2½	¾
K 1 writing shelf	2 4½	6	¾
L 1 small door	0 6½	6	¾
M 2 carcass ends	3 2½	13	1½
N 1 carcass top	2 2½	12½	1½
O 1 carcass bottom	2 5½	12½	1½
P 1 back ledge	2 4½	5	1½
Q 1 writing flap panel	2 0½	6½	¾
R 1 cupboard shelf	2 4½	11	¾
S 1 carcass back	2 11½	29½	¾
T 1 flap panel	2 0½	6½	¾
U 2 door panels	1 7½	10½	¾
V 2 pigeon hole ends	0 9½	7½	¾
W 2 top and bottom	2 4½	7½	¾
X 1 shelf	2 4½	7½	¾
Y 4 vertical divisions	0 6½	7½	¾
Z 2 shapes	0 11	1½	¾

All sizes given are strictly net and allowance must be made for planing, etc. (224)

SUGGESTIONS FOR A SMOKER'S PEDESTAL

IN view of the low seats that are now becoming the fashion, a smokers' pedestal of the type indicated need not exceed 2 ft. (or slightly less) in height, the diameter of the base being about 9 ins. and the diameter of the wooden tray 6 ins. This shallow wooden tray may be shaped to hold a porcelain or glass container for ash and spent matches, whilst in the centre a small brass clip to take a box of matches, or a special boxed receptacle can be easily made of plywood to contain both cigarettes and matches. Trays about 4 ins. to 6 ins. in diameter are obtainable in brass with either four or six depressions in the rim specially provided as cigarette rests, and for present purposes such a tray might be drilled in centre with a hole of about ½ in. diameter for the passing of a bolt or dowel.

Fig. 1 shows the completed stand mounted on a shaft which can be carried out by hand, the shaped portions above and below being pared to detail and finished with rasp and glasspaper.

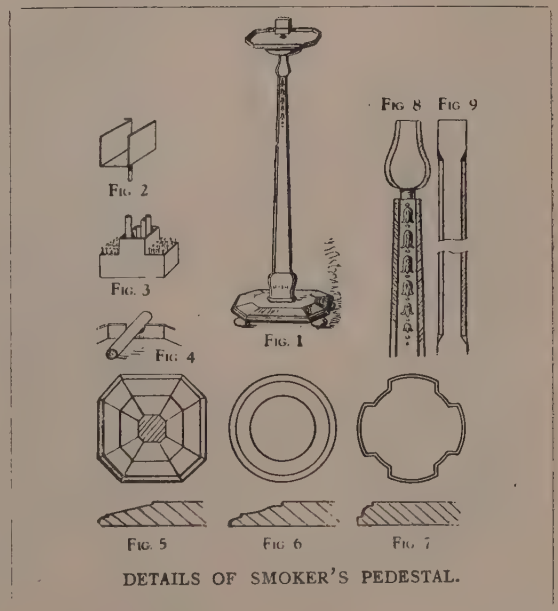
The base forms an irregular octagon with bevelled face and moulded edges, the whole being mounted on four ball feet. The pedestal is suitable for making up in either oak, walnut or mahogany, selecting stuff as straight and long in the grain as possible for the shaft, which will be finished with a tenon to enter the base right through and be wedged.

By way of relief a length of husk detail can be glued and panel pinned on either two or four faces of the shaft above as indicated in Fig. 8, the edges being canted throughout the length of the shaft, using 2 in. x 2 in. stuff for the tapered portion. In a simpler and plainer manner the shaft might consist of a square piece stop-chamfered as in Fig. 9, which in this case might be worked from a length of 1½ in. x 1½ in. stuff.

The upper tray might be of 5 mm. plywood to finish 6 in. x 6 in. with a lipping about ¾ in. wide mitred up at angles to be both glued and

panel-pinned into position. Four of the facets might be cut with a small semi-circular hollow for the resting of a cigarette in the manner indicated in Fig. 4.

Whilst an octagon shaping (shown enlarged Fig. 5) is suggested for the stand, the part may be worked to a circle as in Fig. 6 if a lathe happens to be available. Or, as an alternative, the base might be worked to a shape similar to Fig. 7, which can easily be set out with the compasses. Sections for the moulding of these bases are indicated below. (250)



DETAILS OF SMOKER'S PEDESTAL.

OUTDOOR WOODWORK JOINTS

3.—JOINTS USED IN THE ERECTION OF A PORCH

NOTHING adds more to the appearance of a cottage or to the back door of a small country house than a neat and inexpensive porch. At Fig. 1 we show two fairly simple designs, one at the right hand and another at the left of the drawing. The opening shown in the elevation is 6 ft. 3 in. in height and 3 feet in width; and the over all width is 5 ft. 6 in. These sizes may be varied by the maker according to the size of the actual doorway and the space upon which he may encroach.

The end elevation is shown 2 ft. 2 in. wide, and again this may be increased or reduced according to fancy, and the structure may be fitted with narrow seat boards or shelves for plants, etc. In both cases the lower portion of the framing is filled in with $\frac{3}{4}$ inch matchboarding which is nailed into the rebates of the cross rails as at A in the detailed drawings (Fig. 3).

Strictly speaking the uprights and cross rails should be of hardwood, such as oak or pitch pine,

but as this runs out too expensive for the working man he will have to be contented with red deal uprights and either red deal or white deal cross rails and lattice bars. Red deal, if well painted when constructed, will last from sixteen to twenty years, provided it be repainted every second year. Purchase your timber ready planed up at the local saw-mill. Do not, however, be too insistent upon obtaining the actual sizes which are given, because this may mean special sawing, and it will be cheaper to buy ready made material even if the wood is slightly larger in size, such as rebated "pit light stile" (say, 3 in. by 2 in.) or greenhouse material such as rebated 2 in. by 2 $\frac{1}{2}$ in. stuff. Both the above mentioned sizes are stock machined stuff taken from a saw-mill catalogue.

Having procured your timber, proceed to make your two end frames by halving the top and bottom rails into the back upright and butt-jointing and nailing in your centre cross rails. Do

not finally nail up these end frames until you have set out and fitted the front frames, otherwise the nails will prevent you halving the front frames together.

For the method of construction of the end and front frames turn to Fig. 3. If you intend using ready made diagonal trellis laths as at C, it will be necessary to work a groove in the uprights to accommodate the trellis work as at F. This same sketch, by the way, shows the method of fixing the joints of the brickwork by using wrought iron drifts.

To fix the bottom of the porch to the earth you will have to allow the uprights an extra 6 or 9 ins., and these earthed timbers should either be charred in a red fire or well creosoted. If the porch is fixed on to existing stones or brickwork, all that will be necessary will be to insert $\frac{1}{2}$ in. iron dowels into the ends of the uprights.

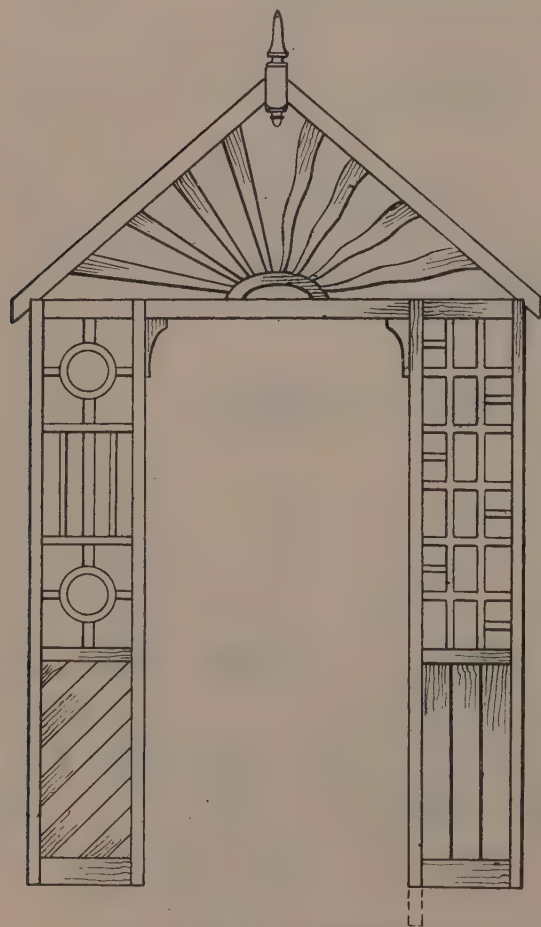


FIG. 1.—COTTAGE PORCH: ALTERNATIVE DESIGNS.

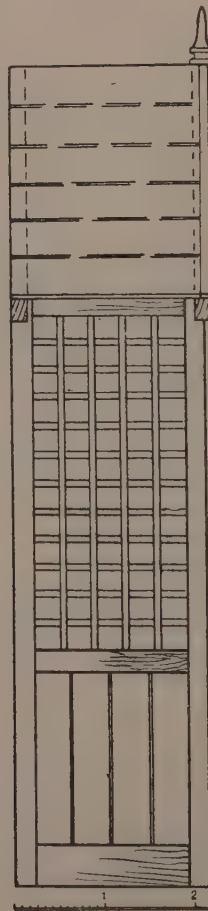


FIG. 2.—END VIEW.

Consider now the filling in of the square lattice work of the end elevation. The joints of the $\frac{3}{4}$ in. square bars (Fig. 1) are halved and nailed together, after which the ends are nailed through the framework; or, alternatively, square ready made trellis may be fixed into grooves as at F. The method of filling in these spaces is simply a matter of time and choice, ready made trellis being the cheapest and quickest. At the right hand of the front elevation (Fig. 1), which shows a broken Chinese type of lattice, the uprights and cross rails are halved and the short pieces are simply nailed in position. At the left half of the front elevation the circles and the bars are simply nailed together, and where the upright bars are superimposed it simply calls for a little clever skew nailing and a judicious use of the nail punch. The two circles may be formed by glueing two pieces of half inch wood together, the grain of the wood running at right angles. When the glue has set the circles may be cut out with a bow or heavy fret saw, or they may be turned on the face plate of the foot lathe.

The lower panels under the circles show a variation of design, suggested so as to allow the worker to use up narrow pieces of wood about $2\frac{1}{2}$ in. or 3 in. in width.

For the roof portion, four blades will be required (which may be got out of 3 in. by 2 in. timber), and an overhanging or eaves effect is obtained by using a birdsmouth joint at B, Fig. 3, and angle jointing and nailing the apex ends together. These blades are nailed in position, after which they are covered with $\frac{3}{4}$ in. matchboarding.

To make this roof waterproof it is advisable to fix on to the top of the matchboard either a layer of Anderson's or Pulvex roofing felt, which must be given a coating of tar.

An ornament, turned up out of 3 in. wood, will make quite a neat finish to the porch, and if the maker wishes he may nail on to the front of the blades two pieces of $\frac{1}{2}$ in. wood, which he may saw out to form an ornamental barge board. The laths used to fill in the open space under the gable are straight tapered as depicted in the left hand half and rayonated and curvelinear at the right hand half. Either type may be used, but if the shaped splats are selected they should be cut out of 1 in. oak. A portion of the half rim is given in the details, and this shows how it is notched out to receive the narrow ends.

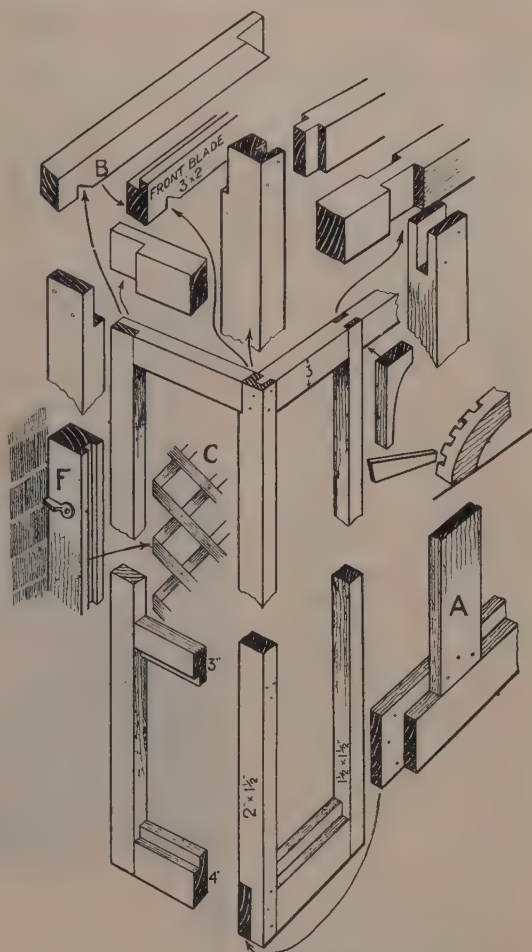


FIG. 3.—DETAIL OF THE VARIOUS JOINTS.

Bear in mind that it is much cheaper to paint than to *make*, and that a wooden porch should be washed down and repainted at least every third year. The paint used should have a good white lead basis and should contain linseed oil. The work will be painted to the fancy of the householder, but we may suggest a black and white effect which is so popular on the modern bungalow.

(329)

SITKA SPRUCE is one among the many giant coniferous trees which thrive to such an amazing extent on the Pacific side of Canada and in the northern States of America in the same locality. It is abundant in Washington, British Columbia, and as far north as Alaska, in which latter region it is said to reach its highest form of development. Compared with the eastern species of Canada the tree is of gigantic proportions, as it is stated by authorities that the average diameter approaches 4 ft., while that of the eastern spruces is less than 1 ft.: the height it attains is also

comparatively proportionate. Very little knowledge of the excellent timber that could be produced from these trees was common before the war, but its value during that period was fully established, its virtues being at once recognised when it began to be used for aeroplane construction—a material of long, tough grain, strong, and yet light in weight, and obtainable in long, perfectly straight-grained pieces being essential. Large quantities were used for this purpose, obtained after the most drastic selection and at exceedingly high prices.

LIGHT 3-FOOT BEDROOM SUITE

3.—THE TALLBOY DRESSING CHEST

THE good accommodation of a tall chest of this type is easily worth the extra timber required in its construction. The drawers are of generous proportions, and there is plenty of room in the cupboard for two useful trays. The last named are handy for the trousers press and for linen. They can be omitted if desired, however, and one or two shelves substituted. The general decorative features of the rest of the suite are retained, particularly in the use of the receding top, the frets, and the cross-channels in the drawers. The sizes given in Fig. 2 are suitable for the modern small house.

THE MAIN CARCASE CONSTRUCTION is apparent from Fig. 3. Solid ends dowelled to the corner posts are used. These are then regarded as complete units in themselves, and the various horizontal members jointed to them. There is no need to use hardwood for all parts. The shelf, and top, for instance, could be of pine with an edging of hardwood.

Prepare the corner posts first. Square them up to finish $1\frac{1}{2}$ ins. in section, and cut them off to the exact over-all length. The top ends in particular should be perfectly square. To mark out the joints they should be placed together side by side and cramped temporarily. This enables the mark to be squared across all four, thus ensuring their being marked alike. There is no need to mark the top dovetails at this stage because these can be dealt with better after the ends have been put together. In any case, it is more accurate to use a gauge for marking these.

Having separated the legs, the sides of the mortises can be marked with the mortise gauge. Fig. 4 shows the joints clearly. A $\frac{3}{4}$ in. chisel should be used. Note that the shelf (that is the cupboard bottom) is tenoned into the posts as well as the drawer rails.

The solid ends are cut out next from $\frac{3}{4}$ or $\frac{1}{2}$ in. stuff. It will probably be necessary to joint them to obtain the width. As they are jointed to the posts with butt joints strengthened with dowels, it is necessary to plane the back and front edges

perfectly true to make a close joint. To do this, plane the front edge true to fit the front post just as if an ordinary butt joint were being made, taking special care to make it square. Square up both ends and mark the back edge parallel with the front, using preferably a panel gauge. Cut away the surplus wood and plane it to fit the back post. Make sure that both ends are alike in size by

placing them together and feeling the edges.

To mark out the dowels handscrew each post in turn against the edge to which it is to be fixed, keeping the top ends level, and square pencil marks across at intervals. About five dowels to each joint are sufficient. Avoid placing them opposite the mortises in the posts. A gauge set to half the thickness of the ends is used to cut across these pencil marks. Use $\frac{3}{8}$ in. dowels and make a saw cut along the length of each to allow the surplus glue to escape.

Before the posts can be glued up it is necessary to cut grooves across the ends for the shelf and drawer runners. These are shown in Figs. 3 and 4. They need be no more than $\frac{1}{2}$ in deep. One important point to watch in cutting them is that the wood at the back edge is not split away. To make sure that they are positioned exactly behind the mortises the posts should be placed in position, the dowels

already in their holes, and the marks squared directly on to the ends. If a plough with side knives is available this can be used. Otherwise the sides can be sawn to depth and the surplus wood cut away with a chisel and finished off with the router. In any case, the sides should first be cut in fairly deeply with a chisel to prevent the wood from splintering out at each side. Rebates are cut at the bottom edges. These should be deeper than the grooves because the bottom runners have to be screwed into them.

At this stage the posts can be glued to the ends. When set, the joints can be levelled and the top edges trimmed. The top dovetail pins, too, can be cut, although it is a moot point whether these are cut and the dovetails on the top marked from

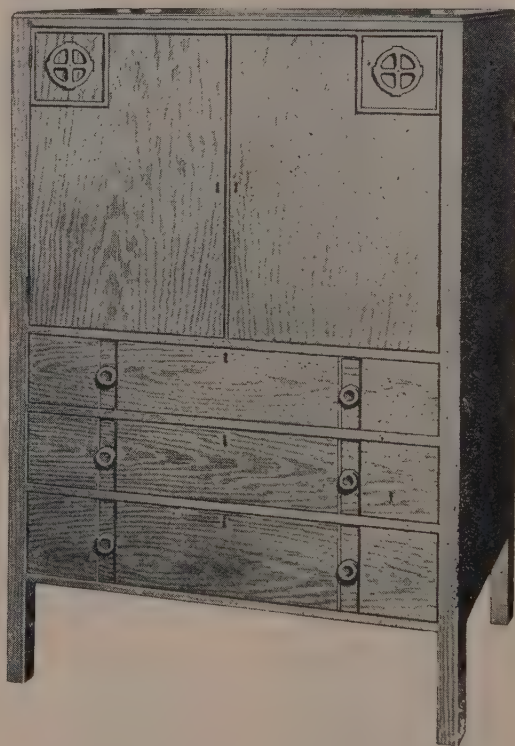


FIG. 1.—TALLBOY OF LIGHT OAK SUITE.
WIDTH, 2 FT. 9 IN.; HEIGHT, 4 FT. 3 IN.
(See July number for Wardrobe;
August number for Dressing Table).

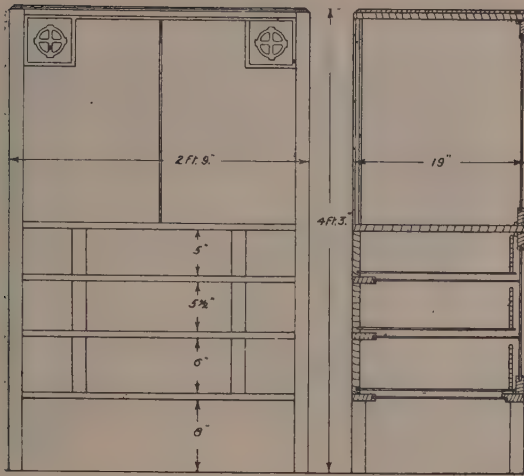


FIG. 2.—ELEVATION AND END SECTION.

them, or vice-versa. Fig. 5 shows the joint. The front post is drawn forward here to reveal the dowels. Actually, of course, the dowelled joint is put together first, otherwise it could not be assembled.

ALL THE HORIZONTAL MEMBERS are now prepared. Plane all up to their respective widths, hand-screw them together and, with a chisel, square the shoulder marks across. It will be seen that in every case the ends have to be cut round the posts. This necessitates a third gauge line in addition to the two lines made with the mortise gauge. The inner projecting part should fit right into the grooves in the ends. A slight additional length is required in the bottom rail because the rebate is deeper than the grooves. All front rails are grooved at the back edges to hold the dust-

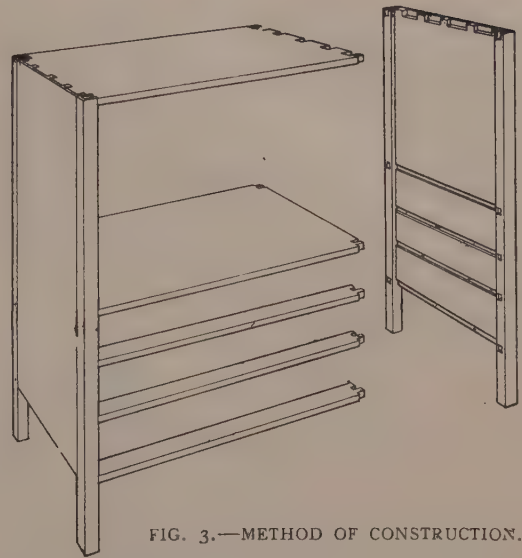


FIG. 3.—METHOD OF CONSTRUCTION.

boards. The bottom back rail is rebated as shown in Fig. 2. This is done to avoid the necessity of putting in the dustboard and runners when the main carcass is being assembled. It is more convenient to fit these afterwards.

To assemble, lay one end on the floor with a cloth beneath to prevent damage, and glue in the shelf and all rails. Add the other end, stand the whole upright, and cramp up. The top is put on lastly, and the whole tested for squareness. The most reliable method of doing this is to lay a strip of wood with one end pointed across the face diagonally and mark the length. If the job is square it will show the same length when the strip is reversed into the opposite corners.

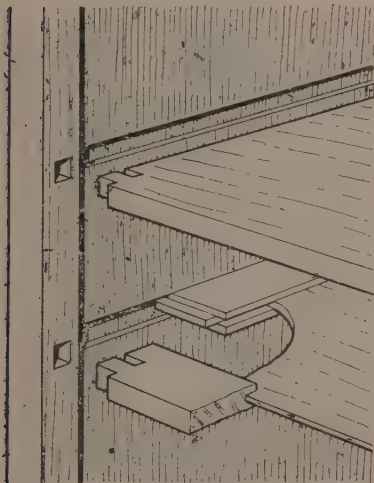


FIG. 4.—FIXING SHELF AND RAILS.

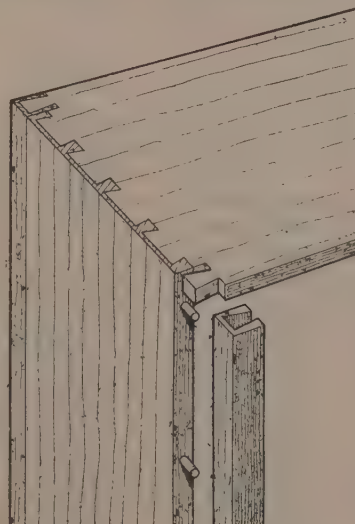


FIG. 5.—TOP JOINT.

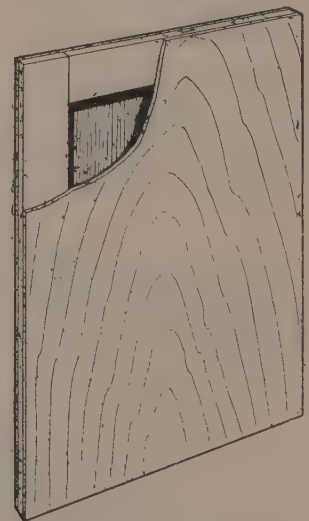


FIG. 6.—HOW DOORS ARE MADE.

THE BACK is in two parts, each being fitted so that it lies flush with the back of the carcass. To provide a fixing for the screws, fillets are glued and nailed all round as shown in the section in Fig. 2. Each back can be of the plain two-panel type. For the top proper a piece of $\frac{3}{8}$ in. stuff is used. It is cut off to stand in about a bare $\frac{1}{8}$ in. at front and sides, these edges being worked with a plain thumb mould.

THE DOORS.—As shown in Fig. 1, the doors are not of the panelled type, but are quite flat at the front with a small half-round moulding mitred at the top to form the small panels containing the frets. This means that ordinary methods of construction cannot be followed. If some perfectly flat, thoroughly seasoned stuff, 1 in. or $\frac{3}{4}$ in. thick is available, this can be used without any form of framing. Unless really reliable wood can be used, however, it is better to follow the construction given in Fig. 6. This consists of an inner framework of $\frac{3}{8}$ in. stuff with plywood panels glued to both sides. The framework rails should be fairly wide, say, 3 ins., and a centre horizontal rail should be provided. Tooth both the plywood and the panels before glueing up. Yet another method is to employ thick plywood or laminated board. Fit the doors before adding the moulding. One point to note in the hingeing is that the butts must project at the front more than usual because the moulding has to clear the corner posts. A closing mould is glued to the right-hand door, and a strip of veneer is laid over the edge of the other to hide the laminations. Allowance must be made for this when fitting the doors.

RUNNERS AND DUSTBOARDS.—Fig. 4 shows how the runners and dustboards are fitted. It is a good idea to groove the edges of the runners at the same time as the drawer rails whilst the plough is still set. The dustboards can be slid in after the runners have been fixed. Guides must be glued on the runners level with the posts.

Those who wish to fit trays to the cupboard can follow the method given in Fig. 7. The supports or runners consist of lengths of 1 in. stuff screwed to the ends and posts. Notches are cut at the ends to fit round the posts. It will be realised that the front ends must stand in

sufficiently to clear the doors. Fig. 8 shows the tray construction. The bottom is a plain piece of stuff, and an edging about 3 ins. wide is screwed to the top. These edgings act as

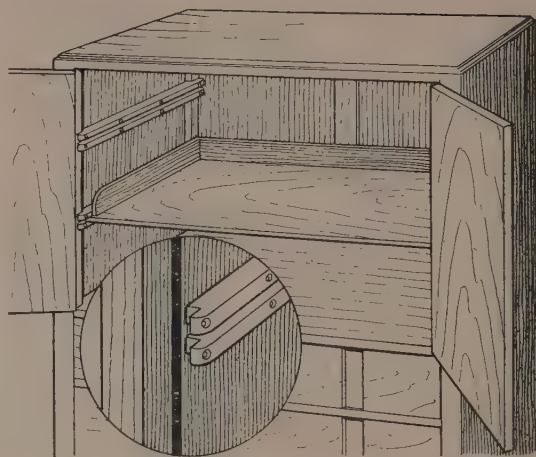


FIG. 7.—INTERIOR OF CUPBOARD.

side guides since they bear against the runners. This enables the bottom to stand away from the posts about $\frac{1}{8}$ in. It thus easily clear the doors when pulled out.

CUTTING LIST:—

		Long. ft. ins.	Wide. ins.	Thick. ins.
4 Posts	...	4 3	1½	1½
2 Ends	...	3 7	16½	¾
1 Top	...	2 9	19	¾
1 False Top	...	2 9	19½	¾
1 Shelf	...	2 8½	19½	¾
4 Rails	...	2 9	2¾	¾
6 Runners	...	1 5	2¼	¾
2 Dustboards	...	2 5	16½	ply.
1 Dustboard	...	2 5	15½	ply.
4 Door stiles	...	1 11	3½	¾
6 Rails	...	1 2	3½	¾
4 Panels	...	1 11	15½	ply.
DRAWERS.				
1 Front	...	2 6½	5½	7/8
1 Front	...	2 6½	5½	7/8
1 Front	...	2 6½	6½	7/8
1 Back	...	2 6½	5	7/8
1 Back	...	2 6½	5½	7/8
1 Back	...	2 6½	6	7/8
2 Sides	...	1 6	5½	7/8
2 Sides	...	1 6	5½	7/8
2 Sides	...	1 6	6½	7/8
3 Bottoms	...	2 6	18	ply.
BACKS.				
2 Stiles	...	1 11	2½	7/8
1 Upright	...	1 10	2½	7/8
2 Rails	...	2 6	2½	7/8
2 Panels	...	1 8	13	ply.
2 Stiles	...	1 6½	2½	7/8
1 Upright	...	1 5½	2½	7/8
2 Rails	...	2 6	2½	7/8
2 Panels	...	1 3	13	ply.
TRAYS.				
2 Bottoms	...	2 6	17	¾
2 Backs	...	2 6	3½	¾
4 Sides	...	1 5	3½	¾

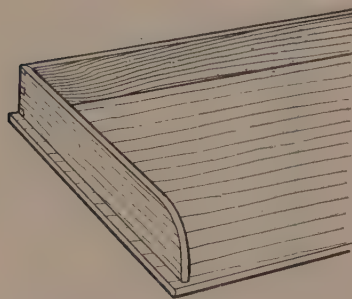


FIG. 8.—DETAIL OF TRAY.

BUNGALOW OR COTTAGE PORCH

A WELCOME ADDITION TO THE COUNTRY HOME

THE appearance of a bungalow or country cottage of the plainer type may be rendered much more attractive by the addition of a simple but artistically treated porch such as the one we picture in the present article. It may be said that a fairly wide doorway existed in this case and that certain superfluous woodwork was removed altogether with the result that, instead of retaining the original door, a folding door made up of four separate panels, all hinged to fall back on each other or to open outward within the compass of the actual porch projection, was introduced. Such doors are included in the sketch at Fig. 1, and are very effective, whilst it is possible to secure them sufficiently for all necessary purposes by an arrangement of bolting top and bottom. The introduction of these doors fixed the projection back to front for the porch at 2 ft. 6 ins., the total height being 8 ft. full with a clear entrance height of about 6 ft. 3 ins. in centre of arch, the width in the clear of 3 ft. 9 ins. being sufficient for the ordinary needs of the average user.

The dimensions here indicated can, of course, be slightly modified either way at discretion, our sketch indicating about the smallest serviceable width and depth that would recess from both sun and rain. It should be noted that additional provision is made for a couple of porch seats to fold down, the gangway clearance when up being a full 2 ft.

THE POSTS.—In selecting the wood for the posts oak would be preferable, but beech or red deal might be substituted. Pitch pine, if available, has fine weather resisting qualities, whilst teak would meet all possible requirements of weather resistance. Being in a prominent position the front posts (A) in any case should be selected with a clean run of grain, without rifts or faults. Stuff 4 ins. by 4 ins. will prove nicely substantial in appearance and is therefore suggested, although 3 ins. by 3 ins. material could be used. These uprights in the best manner will require mortising for the upper structure, whilst below they may enter the ground about 12 ins.

deep or slightly less, the portion of the posts allowed for this purpose being soaked over-night in the tar pail for preservation. The tops of the posts are capped by 7 in. by 7 in. squares (B), these preferably moulded from 1½ in. thick stuff, nailed into position with 4 in. wire nails or screwed. The ball terminals (C) if fitted may require special turning. The diameter as seen would be about 5 ins., and there is usually a dowel on the ball to serve for fixing in position,

being entered through capping into post. Thick paint is used in the joint when entering the dowel, after which a wire nail may be driven through the dowel askew. It might be mentioned that a pair of useful balls should be obtainable from any second-hand cornice pole in hardwood, the latter being better for outside purposes.

At D a top cross rail of 4 in. by 4 in. stuff is tenoned into position, the tenons being cut to lie one above the other when the corresponding end rails are entered. The front rail is afterwards faced with a length of 4 in. section mould (E), this being obtainable in 1 in. thickness with the various members worked ready for blocking forward in the manner indicated at Fig. 4 so that it can be nailed into position, the nails tapped home and the holes of entry filled with red lead and putty. This length of mould when blocked

out in position can be returned on itself with the chisel, as Fig. 2 shows.

THE SHAPED RAIL (F) is 7½ ins. wide and may enter the posts with a couple of tenons, the joint being either pegged or nailed. The spring of the curved lower edge is kept rather flat, say, 3½ ins. in centre, and such a line could be struck by string and pencil from a point 6 ft. 3 ins. distant in setting out. The under edge of this rail may be bevelled with advantage.

THE PEDIMENT SHAPING (G) also shows about 7½ ins. wide, allowing a full 12 ins. at each end in length for the shaping which narrows back to 5 ins. This rail will be tenoned into position and capped with a length of 1½ in. section mould. Thickness for the rails (F and G) should be



FIG. 1.—DESIGN FOR A COUNTRY HOME PORCH.

$1\frac{1}{2}$ in. and, in addition to being jointed the parts may be further stiffened by a length of 3 in. by 2 in. stuff (H) cut to butt tight between posts and screwed or nailed as preferred.

Similar posts to A are fitted to the walls of the cottage or bungalow front and back, being connected by rails of 4 in. by 4 in. stuff top and bottom and tenoned into position, an additional piece of $1\frac{1}{2}$ in. thickness being added above the top end rails of a width to carry round the level of the lesser part of shaping G. Balls could be fitted to these back posts if desired, but all necessary purposes will be served by merely capping the back posts with a piece of 1 in. stuff or a square of zinc with the edges turned over as a weathering. The posts, being sunk in the ground, will not make 4 in. by 4 in. rails below (K) absolutely necessary, but these are introduced partly for extra stiffening and partly as a better base for the folding seats.

THE LATTICE WORK introduced at ends of porch can be made up of $2\frac{1}{2}$ in. by $\frac{3}{4}$ in. outer stiles (I), notched into position and nailed in the upper rail (J), showing $7\frac{1}{2}$ in. wide and of $1\frac{1}{2}$ in. thickness grooved into position. The centre lath and short cross pieces are of $1\frac{1}{2}$ in. by $\frac{3}{4}$ in. lengths,

and all are notched into the lower 4 in. by 4 in. rails (K) and nailed. If desired ordinary 2 in. by 1 in. slating batten answers very well, and the lattice may be made up of builders' sawn laths with lighter result. When being merely nailed together the nails should be clinched, whilst the neatest method for this part of the work is to halve the narrower laths flush into position. In some cases the lattice terminates in a groove cut for it top and bottom in rails, the portion of groove not occupied being afterwards puttied in. The folding seats should prove a happy addition to the porchway and a word on their construction may be useful.

FOLDING SEATS.—A sketch of parts is given at Fig. 6, and a plan of the seat opened out with bracket support at Fig. 7. From the latter it will be seen that a piece 5 in. wide by a full 2 ft. long is notched to fit round posts, front and back, so that it beds tightly into position between them on the 4 in. by 4 in. rail (K) below, where it can be nailed or screwed in addition to a couple of screws into posts as the plan indicates. Thickness of this piece should be $1\frac{1}{2}$ in., and an additional piece about 1 ft. 10 ins. by $7\frac{1}{2}$ ins. is then required for the seat, which will be

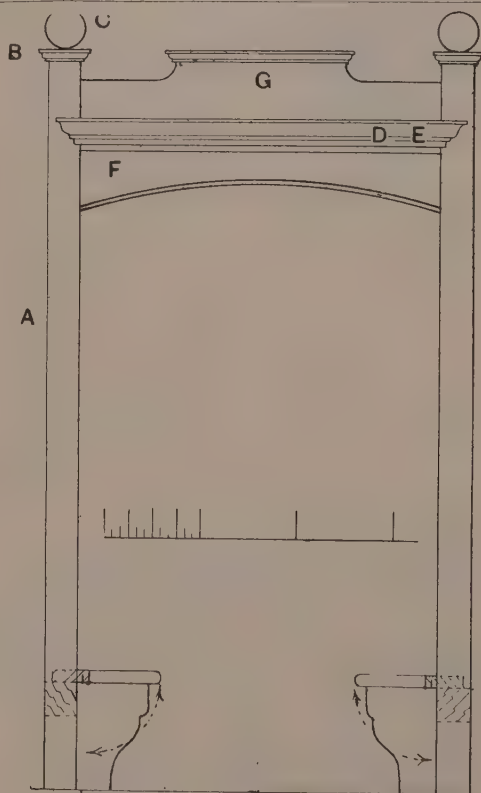


FIG. 2.— ELEVATION, WITH SCALE.

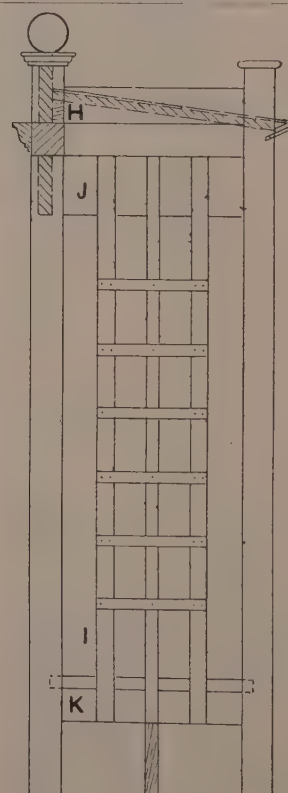
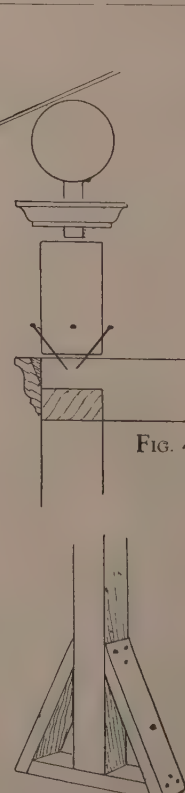


FIG. 3.—END VIEW.



FIGS. 4 AND 5.—
CAP AND SPURS.

hinged with stout brass butts, say, 3 in. size, and supported when up by a shaped bracket finishing about 14 ins. by 7 ins. by 1½ ins. thick and secured and pivoted by pins entered top and bottom. The lower pin may be entered in a slab of stone in ground, or into a concrete surround holed for the purpose, whilst the upper pin enters into the rail fitted between posts. This pivot hole should be bushed with bolt tube or covered with a brass holed plate. The projection of the notching in this piece (L) should be sufficient to allow the bracket to turn under so that the seat flap may fall perpendicularly. It will be best to round the corners of the seat and an elevation of the support mapped out in 3 in. squares is offered at Fig. 8.

If for any reason it is preferred to omit the folding seats, the 4 in. by 4 in. rail under may also be omitted altogether, or the part here can be stiffened by means of a length of gas barrel about ½ in. or ¾ in. in diameter. To do this a 4 in. by 4 in. by 1 in. square of hardwood will be required at each end for screwing to posts. A central hole should be made in each square for the gas barrel to pass, and the latter will require tapping and fitting with its nut at each extremity. The method of attachment is to pass the tubing through the hole at one end and into the nut previously sunk flush into the side of the posts concerned. The square can then be screwed into position to posts. A corresponding square on the remaining end will allow the tube to be sprung into position over its nut, when a turn or two will enter it sufficiently and allow the square to be screwed into position over it. If properly fitted the required tension will be obtained by a mere turn of the barrel. Such an attachment, it may be added, is very secure, and it is possible to utilise the tubing in an additional manner for the fitting of a temporary seat with little fear of collapse. A section of such attachment is given at Fig. 9.

THE SHAPED ARCH (F) can be very simply secured into position by bedding upon a slip 7 in. by 1½ in. by 1½ in. screwed into position to the posts for the purpose, the arch being further held on the face side by lengths of ¾ in. section mould mitred to fit along top and ends of the arch, which has a good effect. Many prefer the segment of an oval to a plain compass struck line, and in such case the rail might be cut as indicated at Fig. 11, which is mapped out in 3 in. squares, and may be made in two halves to be cut under one operation for butting together in centre and fixing by a key block as shown.

It will happen sometimes that lengths of timber at hand are sufficient for the erection of the front of porch with convenient clearance but not long enough to project for the mounting of cappings and ball. In such case the front and end top rails can be jointed, as at Fig. 4, by halving one over the other with either a tenon through or nailed with 6 in. nails. Above this the post projection of 8 in. or whatever it may be can be mounted by nailing as indicated, or the upper pediment including these post additions can be

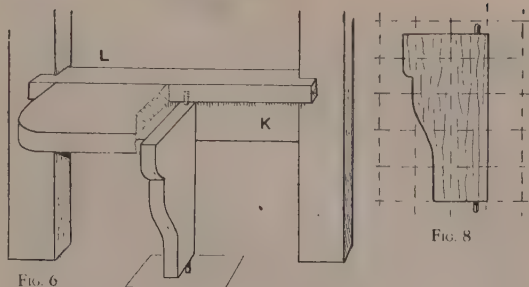


FIG. 6

FIG. 8

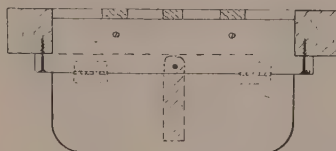


FIG. 7

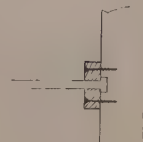


FIG. 9

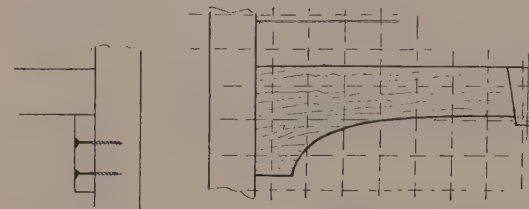


FIG. 10

FIG. 11

FIGS. 6 TO 11.—DETAILS OF SEAT, ARCH, ETC.

separately constructed and mounted as one piece. The detail here shows the ball with dowel to enter through capping into posts. If the posts (A) are to be entered into the plain ground in addition to tarring them they may be fitted with spurs or footings in the manner indicated at Fig. 5, these being knocked up of any odd stuff at hand to the height of about a foot and the whole buried and rammed in rubble. In the sketch (Fig. 1), however, a concrete bottom is suggested and, if this is decided upon, footings for the posts might first be prepared by making a box for the hole of entry so that a ledge of concrete will stand up above the surface of the ground about 3 in. for the posts to stand within. Alternatively they might be bolted into position, and a 9 in. bolt with large head will answer this purpose when carefully cemented in.

FINISH.—Finally, a word as to finish. Many use solignum or creosote, which are both rapid in application and economical. But for the really daintiest effect the porch should be painted white. The whole thing should be first given a coat of red lead priming and then three coats of pure white lead paint. Afterwards the mouldings can be picked out with middle green, a colour which goes well with the foliage. The lattice can also be painted green. The folding doors could, of course, be fitted to the front posts of porch if desired, and in painting the framework should show green with white panels, or the top centre panels could be glazed. (351)

LIGHT CARPENTRY

SIMPLE FOLDING CARD TABLE

DAYLIGHT is once more on the wane, and one or two readers have asked for particulars for making a light and simple folding card table so that all may be in readiness for the autumn evenings. The type of table which we show (with the framed top open) at Fig. 1 has become very popular in the home because it can be used either for an occasional game at cards or to support a chess or draughts board. It is easy to make, of convenient size, inexpensive, and quite attractive if covered with a green baize or fine felt top. The legs are held to the top by pivot screws and a steel or iron clip, the latter engaging the round dowel rod which forms the cross stay to one pair of legs. When the table is not in use it can be closed up and then appears as in Figs. 2 and 3, inside elevation and end view. The design is well proportioned for strength, combined with lightness.

MATERIALS AND DIMENSIONS.—The table will be quite serviceable when made up as follows:—Top board, 2 ft. square out of 5 mm. plywood, birch or alder; mitred frame, in four pieces 2 ft. 1 in. by 1½ in. by 1 in. from canarywood, red deal or yellow pine; outside beads, four pieces 2 ft. 1 in. by 1½ in. by ½ in. of canarywood, mahogany or oak; 20 round-headed ¼ by 5 gauge brass screws; four legs, 3 ft. by 1½ in. by ¾ in. or ¾ in. birch or red deal; four stays 2 ft. by 1½ in. by ½ in. oak, ash or birch; top dowel rod 22 in. by ¼ in. diameter, birch or hardwood; one clip; two ¼ in. spout screws for central pivots and sundry screws for fixing.

Commence the work by marking a true square, 1 ft. 11 in., on your piece of plywood, allowing a small margin of plywood all round. Mitre the ends of the four frame pieces to fit up to the line, and glue and secure them to the plywood with cramps or with screws from the face of the plywood. When the glue has set saw or plane the small margin of plywood away so that the outside edges of both plywood and frame are flush and square. The mitres of the frame should, of course, be nailed or pocket screwed to hold the corners firmly together (see details at Fig. 4). Take two of the leg pieces and round the top end of each piece; then bore a suitable hole and countersink for the pivot screws, which should be approximately 2 in. long (see P.S. Fig. 5). Hold these legs inside the frame and find the correct position of the pivot holes (P.H. Fig. 4). These will have to be made with an iron skewer or bradawl having a handle of small diameter, otherwise the handle will foul the plywood top board. Having determined the position of these two legs will enable you to find their over all size, and so to cut and fit the X-shaped struts or laths to suit the width across the legs.

When you have completed the building of these wide legs, proceed to make up the narrow leg frame to suit them. Into the top of these narrow legs a hole is bored to receive the dowel rod, and this rod is glued and sprigged into position as suggested at Fig. 5. After this it is a simple matter to find the position and fix the X-shaped stretchers to them. The position of the central

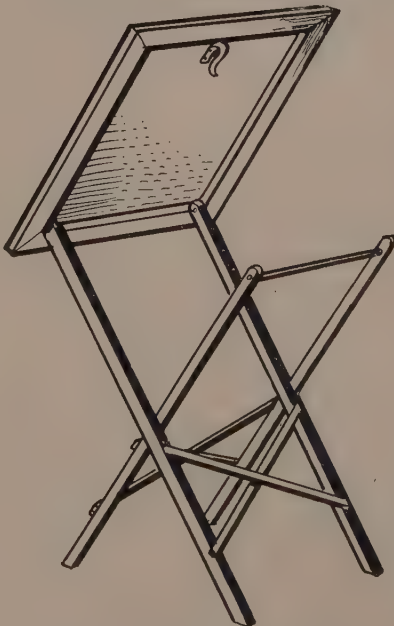


FIG. 1.—FOLDING CARD TABLE.

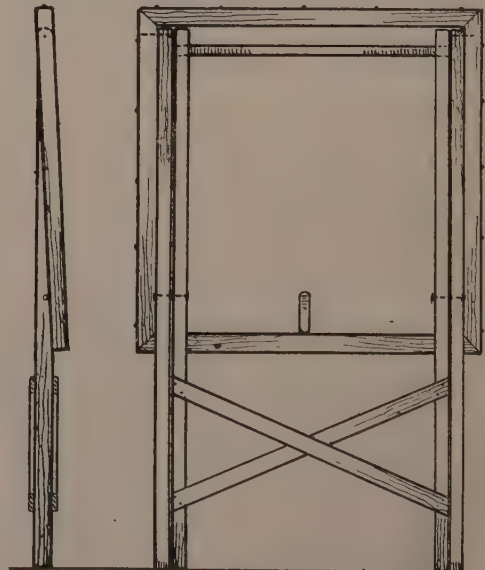


FIG. 2.

FIG. 3.—ELEVATION, FOLDED.

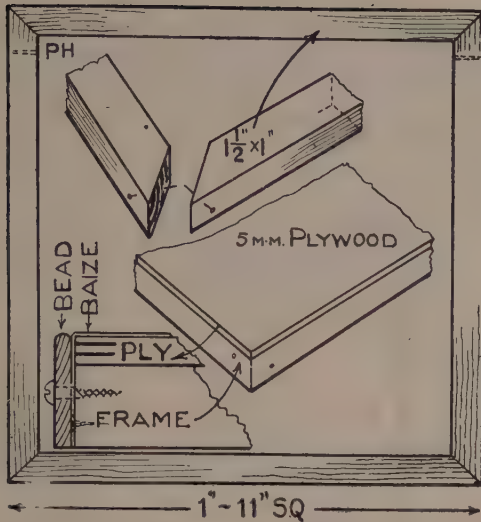


FIG. 4.—DETAIL OF FRAMED TOP.

pivot bolt and a sketch of a portion of this $\frac{1}{4}$ in. bolt is given, and of course suitable washers may be fixed between the legs to give the necessary clearance and allow them to open freely. The foot ends of the legs will have to be slightly bevelled to suit the floor and this is simply a matter of trial and error. Pack the legs so that the table stands level and then scribe the desired lines, which must of course be parallel to the floor line. A piece of $\frac{1}{4}$ in. lath, such as is cut off the end of one of the X stays, and a pencil, will be all that is necessary for this marking.

TWO DISTINCT TYPES OF CLIP are shown for the purpose of holding the narrow leg frame. That at Fig. 6, however, answers the best because it allows the ends of the legs to abut the table frame and holds the table rigid. It is also simpler to construct than the one illustrated at Fig. 1.

THE CLOTH used for covering the top should be at least $2\frac{1}{2}$ in. larger each way than the table, to allow the worker to stretch it evenly and tack it in position with $\frac{3}{8}$ in. tacks. After the cloth has been laid, trim off the overlapping edges and fix the four pieces of polished beading round the edges of the table with round-headed screws.

These wooden beads should be rounded at their top edges and the corners must be neatly mitre-jointed (Fig. 4).

The legs of the table will require one coat of water or spirit stain, such as dark green or walnut colour, after which they may be given one brush coat of painter's knotting. When dry ease down with fine grade glasspaper and give a good rubbing with a wax polish.

(339)

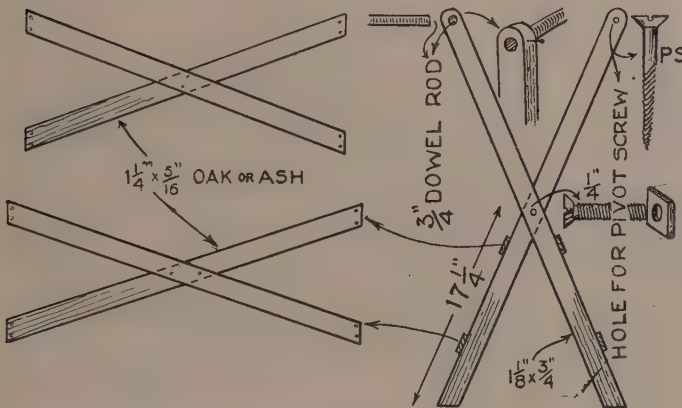


FIG. 5.—METHOD OF MAKING LEGS.



FIG. 6.—DETAIL OF CLIP.

Pedestal Gramophone Cabinet.

(Continued from page 258).

CUTTING LIST:—			
	Long. ft. ins.	Wide. ins.	Thick. ins.
A 4 Legs	3 0	2	2
B 2 For lid	1 6	3 1/2	3/4
C 2 Ditto	1 7 1/2	3 1/2	3/4
D 2 Top doors	0 10	7 3/4	3/4
E 2 Bottom doors	1 4 1/2	7 3/4	3/4
F 2 Ends	2 3	17 1/4	1 1/2
G 1 Back	2 3	15 3/4	1 1/2
H 1 Top	1 6 1/2	19 1/2	1 1/2
J 1 Motor board	1 4 1/2	12 1/2	1 1/2
1 Tone arm board	1 4 1/2	5 1/2	1 1/2
K 1 Shelf	1 4 1/2	18 3/4	1 1/2

	Long. ft. ins.	Wide. ins.	Thick. ins.
L 1 Bottom	1 5 1/2	19 1/2	1 1/2
M 2 Lid moulds	3 3	1	1 1/2
12 Bearers	1 4 1/2	3 1/2	1 1/2
3 Shelves	1 4 1/2	17 1/2	1 1/2
2 Louvre uprights	0 9	1 1/2	1 1/2
4 Ditto slates	1 3	2 1/2	1 1/2

All the above sizes are net. Allow for cutting and paring.

(347)

SEE AUGUST NUMBER for articles on a lean-to greenhouse; tea trolley for lounge or garden; garden summer shelter; bungalow sideboard; music cabinet; rabbit hutch; nest of five tables; decorative garden arch, etc. A few copies are still available.

THE QUESTION BOX

QUESTIONS only of general interest can be answered in these columns. Readers will kindly note:—(1) Detailed replies or sketches cannot under any circumstances be sent by post; but, as the Editor may require further information, a stamped addressed envelope should be enclosed. (2) Full particulars of what is required should be clearly stated, and (if possible) a rough sketch with over-all sizes enclosed. (3) Questions of purely personal interest cannot be dealt with in these columns.

NOTE.—With each Query must be sent a Coupon (see foot of page iv. of cover). All queries to be addressed: Editor, THE WOODWORKER, Montague House, Russell Square, London, W.C.1.

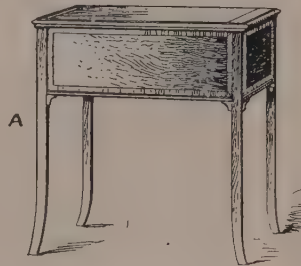
Lady's Work Table.

F. W. H. (Fd. Malay States) asks for help with the construction of a lady's work table.

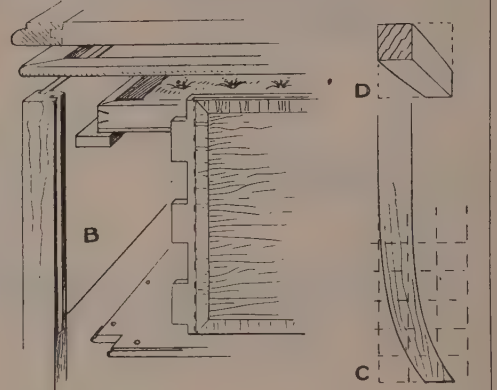
REPLY.—On the lines of the rough sketch enclosed with your letter, the table might be worked out to a finishing height of 2 ft. 4 ins. with a top measurement of 1 ft. 9 ins. to 2 ft. by 12 ins., the actual depth of the box portion over all when the lid is closed showing as 9 ins. (A). This may be increased by a couple of inches without undue heaviness in appearance should something more capacious be desired. The method of construction is given at B. Legs should be selected from hardwood as long and straight in the grain as possible, finishing dimensions being $1\frac{1}{2}$ in. by $1\frac{1}{8}$ in., or, in the 2 ft. size, $1\frac{1}{2}$ in. by $1\frac{1}{4}$ in., to be tapered to $\frac{3}{4}$ in. by $\frac{3}{4}$ in. or $\frac{7}{8}$ in. by $\frac{3}{4}$ in. at ground as preferred. These legs will be grooved and mortised for tenons to enter on sides and ends, the joint being bevelled to meet in the leg where it can be pegged for stiffening hold. The sides may be quite plain if you propose to use figured wood, or, as in your own sketch you appear to prefer an inlaid top, you might, we think, introduce a cross-cut banding, $\frac{1}{2}$ in. or $\frac{3}{4}$ in. wide, as a surround to sides and ends of the box. This will assure a neat finish, especially if the banding is of good contrasting colour for relief, such as is afforded by brown oak on walnut, or walnut on either oak or mahogany, toned down in the final polishing. The bottom of box may be of $\frac{1}{2}$ in. thickness, notched at corners to fit round legs and screwed up into position to the sides and ends, which may be of $\frac{3}{4}$ in. or $\frac{1}{2}$ in. thickness as preferred. The finish of the top of box will be best effected by a rim made by mitreing up lengths of $1\frac{1}{2}$ in. by $\frac{1}{4}$ in. slip, the mitres being tongued and glued together and the rim itself fixed in position by lengths of quarter round fillet, glued snugly into the angles under and cut to butt tight up to legs.

The actual top or lid of the table in the 2 ft. size would be at least $\frac{3}{4}$ in. and may be $\frac{1}{2}$ in. thick with clamps, 2 in. wide, tongued into position and moulded on edge as the section shows at B.

The interior of box or well may conveniently be fitted with ledges upon which a shallow tray can travel, this being of a width that will allow space for the hand to pass, so that knitting or other work may be dropped into the well or taken from it without lifting tray out bodily. The tray can be made up of $1\frac{1}{2}$ in. by $\frac{1}{4}$ in. rims mitred together and keyed as indicated and with a $\frac{3}{4}$ in. thickness bottom screwed up into position. A portion of the tray may be fitted with slips of $\frac{1}{4}$ in. thickness or plywood grooved into sides to form recesses for the necessary cottons, etc., or the



SUGGESTION FOR LADY'S WORK TABLE.



bottom may be fitted with a pad made up on 3 mm. plywood.

In reply to a further question, an elevation of one side of the leg splay is given at C, and the shaping, whilst it may be cut from one piece of wood if the grain is favourable, may also be cut from the straight length, the toe being formed by an extra glueing tongued on. A plan of the leg splay is also shown at D, from which it will be seen that the extent of the splay amounts to about the thickness of the wood in use for the leg. (319)

Stripping and Re-Staining Oak.

S. A. H. (Norbury) has stained and polished an oak gramophone cabinet, but finds it has not finished sufficiently dark. He asks how to remove the polish and re-stain the job.

REPLY.—Obtain a pound tin of pyrol or Johnson's paint and varnish remover and apply it as per instructions given on the tin. This will soften the body of polish, after which it may be removed with a dull scraper knife in a jellified condition. Then wash the job with a swab of rag dipped in methylated spirits and allow the work to dry for a day. On taking it up, glasspaper the surface with No. 1 grade paper and re-stain the cabinet with a suitable shade of Johnson's wood dye, say, No. 172 Flemish oak, which is a spirit stain and will strike through any slight grain filler that has been left in the pores of the wood. If this stain is too dark you may dilute according to the instructions. When the stain has dried over night give the work a brush coat of french polish to fasten, and later fill-in and re-polish.

Alternatively a coat or two of strong liquid ammonia, .880, will denature the polish so that it can be easily removed, and this ammonia wash will materially darken the oak. After using the ammonia be sure to remove all traces of it by washing the cabinet with methylated spirit. It is, of course, more trouble to strip a job and re-stain and polish it than to start the polishing from the bare wood. (338)

Removing Polish and Red Oil Stain

N. W. (Darlington) has given a cabinet two coats of red oil stain, and not finding the result very successful asks how to remove the polish and stain.

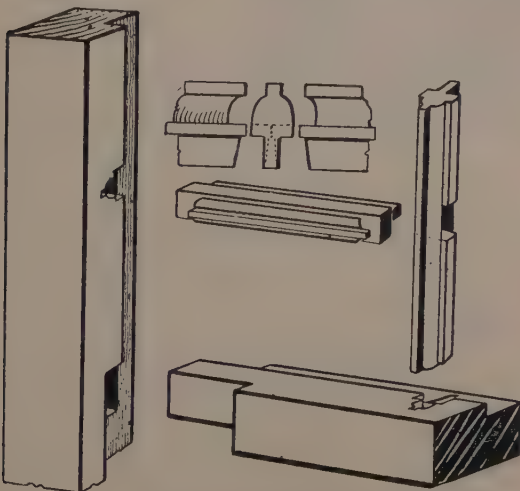
REPLY.—French polish may be removed by soaking the surface with methylated spirits and then rubbing off the polish with old rag. A little powdered pumice stone sprinkled on the wet surface will greatly assist in removing the polish. But this method is rather expensive, and if a large area has to be treated it is more economical to use an electric stripping solvent or pyrol paint and varnish remover. Strong liquid ammonia will also act as a stripping solution, but is unpleasant to use and best applied when the furniture is in the open air. A stain may to some extent be bleached by applying a solution of oxalic acid immediately after the stripping is completed and whilst the surface of the wood is still moist with the stripping fluid. 1½ ozs. oxalic acid crystals to a pint of warm water will make an efficient bleach. After bleaching, the work should be washed over with methylated spirits or vinegar and allowed to dry. Keep the fingers clear of the oxalic acid solution.

Your mahogany appears to have had a too liberal supply of red oil, and we gather from your letter has a tendency to bleed. You should paint it over repeatedly with benzine to dry out any excess of oil and glasspaper and re-stain with a spirit stain. (268)

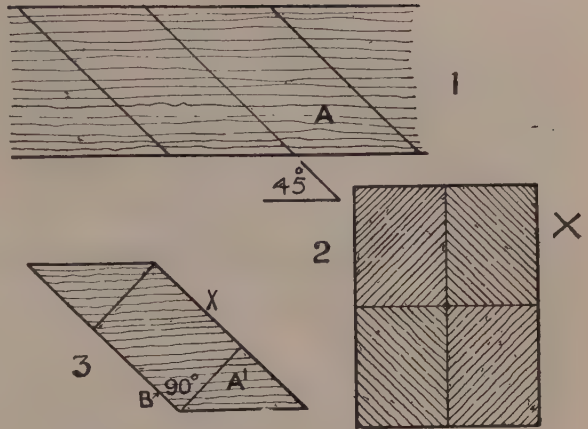
Window Joints

C. F. (Rumney) wishes to fit several new windows to his house, and asks how to make the sash joints.

REPLY.—A glance at the accompanying illustrations will show how sash stuff and glass bars are mortised, tenoned and scribed together. The scribing of the moulding may easily be sawn out to the required shape with a coping saw. A coping saw and frame is similar to a fret-saw with the exception that the frame does not give the same amount of overhang or clearance and the saw blade is slightly stronger. Another method of cutting the scribe is to make a jig of hardwood, which fits over the moulding, and the end of this jig or template is cut to the exact shape of the scribe. The jig then acts as a guide to the gouge or gouges. (280)



DETAIL OF WINDOW JOINTS.



CUTTING VENEER FOR QUARTERED PANELS.

Cutting Veneer for Quartered Panels

E. J. D. (Sydenham) asks how to cut sheets or leaves of veneer for quartered panels, so that the grain is at the correct angle.

REPLY.—The cutting tool used may be a finely toothed saw or a saw made out of an old table knife or sharp chisel, according to the type of veneer used, such as knife cut or saw cut. The veneer usually selected is of the straight-grained variety. Four consecutive sheets of the veneer should be cut at one operation so that, when the quarterings are turned to their respective positions, the grain will match. Take four sheets of following veneers and cut them at 45° to the edge, as at Fig. 1. Now take the four veneers which lie under A (Fig. 1) and, by cutting at right angles to the edge as at B (Fig. 3), you will obtain four pieces of a rectangular shape with the grain running at 45° as suggested by the piece X (Fig. 2). These rectangular pieces when opened out will form the quartering as sketched at Fig. 2. The waste pieces as at A1 (Fig. 3) may be used up for other types of work. This method of laying out your veneer will give you the maximum sized piece of quartering that can be cut from the particular width of sheet you are using. If you desire smaller sheets for quartering you would, of course, cut two pieces out of Fig. 3 instead of the one piece X, or use a narrower sheet of veneer. (279)

Matching Mahogany

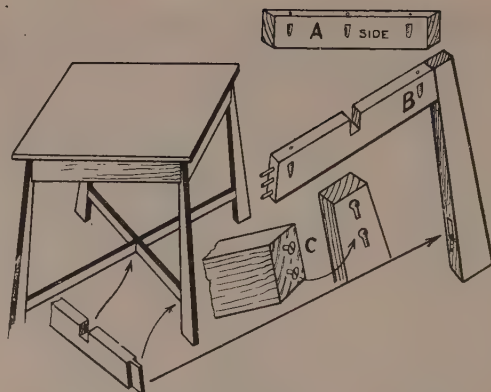
F. A. M. (Herne Hill) wishes to stain a mahogany stand which he has made to take his mahogany gramophone and asks how to match the colour.

REPLY.—In nearly all the trade workshops a solution of bichromate of potash is used to darken real mahogany. Dissolve three pennyworth in warm water, allow it to cool and stain a small piece of your scrap mahogany with it. Fill in and half finish this pilot piece so that you can compare the shade with the gramophone. If the colour is too deep add more water to the stain. It will be necessary slightly to tint your polish after the first bodying-up with a trace of bismark brown aniline dye in order to obtain the medium red tinge. If you cannot match the job by direct staining you will have to tint your polish with black, brown or red aniline as the work progresses. (265)

Table Joints

W. W. (Pontefract) wishes to make a small table and asks the strongest method of jointing the corners.

REPLY.—It will be noted that the tapered legs are splayed and are made out of wood which is 1 in. in thickness. The simplest and strongest method for an amateur to adopt is to use two diagonal braces (B) at the top of the table legs, these braces being halved together at their centres and doweled into the edges of the legs with $\frac{3}{4}$ in. dowels. The bottom cross rails are also halved together at the centre and, as they are too narrow to take two dowels comfortably, they should be tenoned and mortised into the edges of the legs. The four side rails (A) are cut to a mitre joint to fit against the legs to which they are glued at the mitres. Possibly it may be necessary to insert through them a couple of fine $1\frac{1}{4}$ in. panel pins at the joints. The table top is secured by the method known as pocket screwing, and this of course gives further security to the sides (A). An alternative method of jointing is to dispense with the diagonal rails (B) and to mitre, glue and slot screw the sides to the legs as suggested at C. This is rather a weak method but for small tables and plant stands will suffice, provided that the internal angles are supported by glueing deal blocks into the inside corners of the work. If the table is built with the cross braces (B), the table top should be screwed to the table frame before fitting in the pieces (A). In other words, the four pieces (A) are fitted into position after the table is assembled. (259)



JOINTS FOR TABLE WITH SPYLED LEGS.

Stripping a Cabinet Lid

C. E. D. (Bellingham) has stained a cabinet lid of American whitewood with a solution of permanganate of potash, and having finished the work now finds that it is much too dark in colour to match the remainder of the piece. He asks how to remedy this.

REPLY.—The simplest and quickest thing to do is to plane up the work, glasspaper and re-stain it. You can, however, try the following method, although it is a messy business. Procure some pyrol paint and varnish removing liquid or some of Johnson's electric solvent stripping solution and use according to the directions. After stripping, allow the work partly to dry and then apply to the surface whilst still damp a bleaching solution made as follows: Dissolve two pennyworth of oxalic crystals in one pint of warm water, swab this on to the work and let it dry. Repeated applications of this bleach will probably lighten the stain sufficiently for your requirements. After bleaching to the required shade wash the surface with a solution of carbonate of soda, say, $\frac{1}{2}$ oz. carbonate of soda to $\frac{1}{2}$ pint water. Wipe the work as dry as possible and allow the wood at least three days to dry. Then re-stain and again go through the filling-in and polishing process. (261)

To Finish Teak

S. G. M. (Sheerness) has made a cabinet in teak and asks how to finish it to its natural shade.

REPLY.—Teak may be finished to its natural colour as follows. Do not oil the work, but proceed to fill in with a suitably coloured paste wood filler, such as satin walnut filler, which may be procured ready made from any polisher's supply stores. Allow this two days to harden in the pores of the wood, then apply a polish made from orange shellac, say, 6 ozs. orange shellac to 1 pint of methylated spirits. If your work appears somewhat sickly in colour after the second

bodying-in process, tint your polish very slightly with a little bismark brown aniline powder. Use this tinted polish for your third bodying-up and it will give tone and life to the work. Finally, spirit out. Bismark brown gives a fierce red shade and must be used very sparingly. Your best plan would be to dissolve a little of the bismark in some methylated spirits in a separate bottle and add a little of this tinted spirits to your polish. Teak makes an excellent imitation mahogany if stained with a brown mahogany wood dye. In this case you would first stain the wood, and then fill it in with a mahogany filler and proceed to polish just as if it were real mahogany. (260)

Glueing Inlaid Veneers

D. G. B. (Richmond) writes: "I have been trying my hand at making inlay pictures and have had great difficulty in glueing the veneers down. These veneers resemble an interlocking jig saw puzzle, and if I attempt to build up the picture at one go the glue sets and the first laid veneers tend to curl up before the last piece is in place. If, on the other hand, I build up gradually, glueing a few pieces and letting them set, I find that either the heat or pressure, or both, distort the veneer."

REPLY.—In the making of pictorial inlays the veneers are placed one behind the other and stuck together by inserting between each sheet of veneer thin white paper which is smeared with glue. After the sheets have been glued down under pressure the pattern should be either drawn or traced on to the top sheet. The work is then cut with a fine gauge fretsaw blade. The saw should be held slightly on the bevel so as to allow for the kerf. The separate pieces of cut veneer are now laid on to a piece of white paper and glued down. To prevent the veneers from "creeping" the glue used should be tacky or partially set. If a thin hot glue be used for the purpose there will be a tendency for the cut veneers to "float" and creep during the assembly.

When the whole of the pattern has been built up on paper and the glue has set, the pattern is laid on to the core or ground panel by the caul method, the papered side being uppermost. The work should be allowed three days, or longer if circumstances will permit, before it is cleaned off. Care and experience are necessary in choosing suitable veneers as large pieces of wild-grained wood will have a tendency to shrink unequally and thus leave open joints. (283)

THE WOODWORKER

VOLUME XXXIV.

OCTOBER, 1930.

NO. 443.

FITTED OAK WARDROBE

A USEFUL 3 FT. 6 IN. PIECE FOR THE SINGLE BEDROOM

THIS form of wardrobe is particularly popular nowadays. Its convenience is well worth its extra cost. Actually from the point of view of the man working at home, the extra cost is small, because little of this is incurred in material. It is mainly a matter of the labour involved, and this is not important when the job is not being made to be sold.

The wardrobe shown in Fig. 1 is 5 ft. high by 3 ft. 6 in. wide, and is large enough for most purposes. It is modern in style, having wide, flat doors with no visible framing, and broken only by a cross fret or carved moulding. Actually, they consist of veneered plywood panels mounted on frames with a plain quarter-round at the edges concealing the laminations of the plywood. Another characteristic modern feature is the absence of all projecting mouldings. In place of them are small square channels.

In regard to accommodation, the interior is divided into two main compartments. That to the left is for hanging, and should be fitted enabling coat hangers. Two dowels rods at the bottom act as a shoe rack. The right hand compartment has several useful fittings. The lower space is provided with a movable rack for trousers. The whole thing can be drawn forward like a drawer, and the arms are pivoted at the back. Above the rack are two useful drawers, and the upper spaces are for hats and so on. A handy feature is the shaving mirror attached to the right-hand door.

As it is a trifle low, it is pivoted. A tray for shaving brush, razor, etc., is provided; also a towel rail. If desired, a full length mirror could be fixed to the other door.

MAIN SIZES are given in Figs. 2 and 3, and Fig. 4 shows how the carcass is put together. It will be noticed that the top and bottom front edges are flush with those of the ends. This

necessitates the frieze and plinth being planted on the face, mitre pieces being fitted at the ends. Lap dovetails are used at the top as in usual carcass construction, but, as the ends run right through at the bottom to form the feet, the bottom is fixed with mortise joints as in Fig. 5. Those who wish can substitute a simple grooved joint, but this is not so strong. Through tenons are worked on the centre partition for fixing to the top and bottom.

PREPARE THE ENDS first, and, having squared them to size, mark out the joints. It is immaterial whether the pins on these or the dovetails on the top are cut first. The channels lining with the frieze

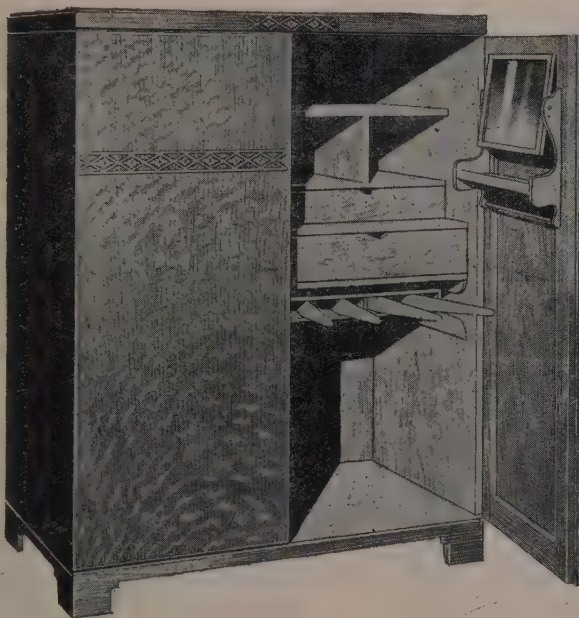


FIG. 1.—3 FT. 6 IN. FITTED OAK WARDROBE. OVER ALL HEIGHT, 5 FEET.

and plinth are $\frac{3}{4}$ in. wide and about $\frac{1}{4}$ in. deep, and must be neatly cut. They should be marked out with cutting gauge or chisel, and a small V-groove worked *inside* the marks to provide a channel in which the saw can work. The bottom is bevelled with a router and the whole finished smooth with glasspaper wrapped round a square piece of wood. Rebates are worked at the back edges to hold the back.

The length of the centre partition is taken from the ends, the shoulders being marked to coincide

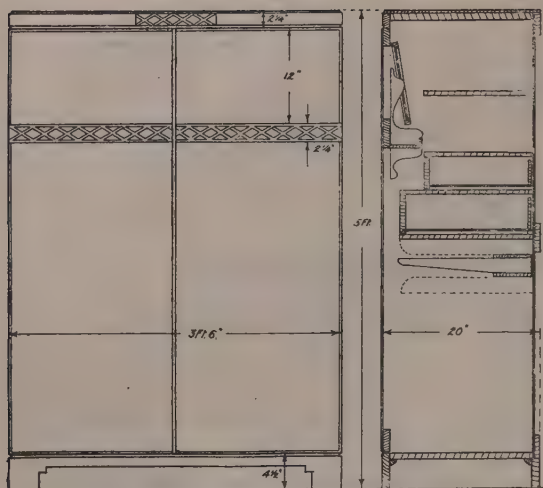


FIG. 2.—ELEVATION AND END SECTION.

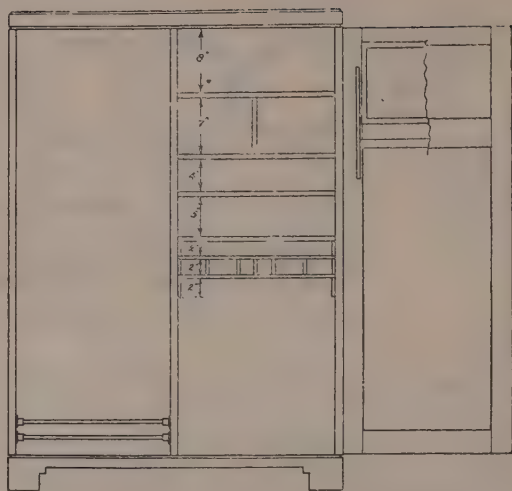


FIG. 3.—DETAIL OF INTERIOR ACCOMMODATION.

with the dovetail gauge lines on the ends. Grooves must be cut in both this and the right-hand end to support the shelves. They are stopped within $\frac{1}{4}$ in. of the front edges of the shelves, the last named having shoulders to correspond. Note that the partition equals the top and bottom in width, being narrower than the ends by the thickness of the back.

If desired the top and bottom can be in softwood. There is no need to face them because the frieze and plinth cover the front edges. When assembling the whole, glue the ends to the bottom, add the partition, and put on the top last. Assistance is really essential. Set aside for the

glue to harden after testing for squareness.

FIXING THE PLINTH AND FRIEZE.—Fig. 4 shows how the plinth and frieze are fixed. The mitre pieces at the ends are glued on first. The grain should run in the same direction as that of the ends, and the channelling should be continued across them. Care is needed in cutting the mitres of the plinth. Not only must they fit accurately, but the whole length of the wood must bed lightly against the edge of the bottom. For a thoroughly strong job, three or four dowels can be used at intervals of 9 ins. or so. In any case, glue blocks must be rubbed in at all internal angles. The frieze is fixed similarly, except that there is no need to use glue blocks, because there is little strain here. The top proper is of $\frac{3}{4}$ in. stuff and is screwed through from underneath. It sets back all round, and so forms a recessed fillet.

There is no need to fix the shelves until after the carcase has set. To put them in earlier would only complicate the assembling, already a big job. They are easily passed in from the back. Fig. 7 shows how the back is made. It will be realised that, owing to the various interior fittings, a flush back is desirable. Otherwise it would be necessary to cut the shelves around the framing. Consequently, a plain, square-edged framework is made up from $\frac{1}{4}$ in. stuff and plywood panels planted on the face of this. The inset sketches show the framework joints. Mortise and tenon joints are used at the corners, and a halved joint at the intersection of the middle members. It is desirable that the left-hand panel is in one piece so that no joint can be seen when the door is opened.

TROUSERS HANGER.—A rather unusual feature is the trousers hanger shown in detail in Fig. 6. A sort of shallow box open at front and back and with a centre division is dovetailed together. The centre division prevents any tendency for the bottom to sag when taking any weight. The arms fit hand tight between the top and bottom and

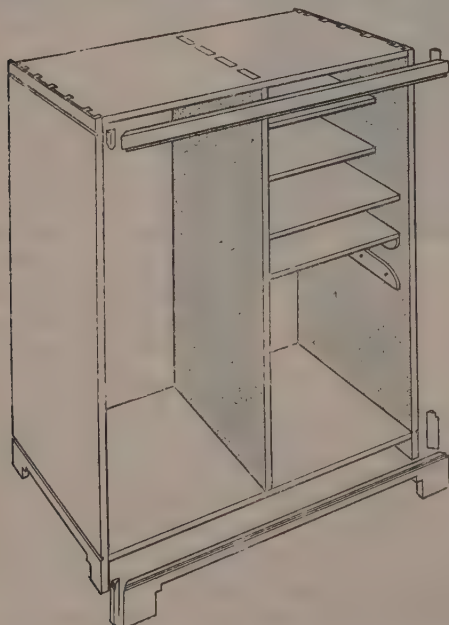


FIG. 4.—MAIN CARCASE CONSTRUCTION.

are pivoted each with two screws. The last named are not driven in tightly, but allow the heads to turn when the arms are moved. Note that the arms are tapered in their projection. All sharp edges should be glasspapered over. Two battens each are screwed to the end and partition to support the box. They act as runners for it. Stops can be fixed near the front to prevent the box from being drawn too far out. The section in Fig. 2 shows the comparative length of the arms. The box should be about 5 ins. wide.

There is nothing special about the drawer construction. In place of handles, the top edges of the fronts are hollowed out. The mirror and its fitting are made up as a complete unit, and screwed to the door. Note that its depth is limited by the set back of the upper drawer (Fig. 2).

DOORS.—A similar construction to that of the back is followed for the doors. Details are given in Fig. 8. The frames are made up first and are fitted. Note that the plywood panels stand in $\frac{1}{8}$ in. at the edges. This allows the quarter-round mould to be planted in the rebate so formed, hiding the plywood

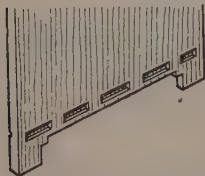


FIG. 5.—LOWER JOINT.

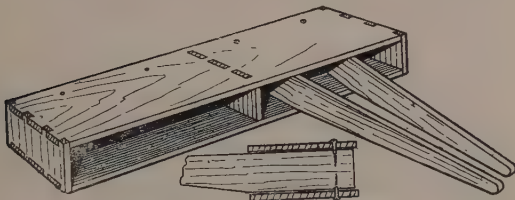


FIG. 6.—TROUSERS HANGER.

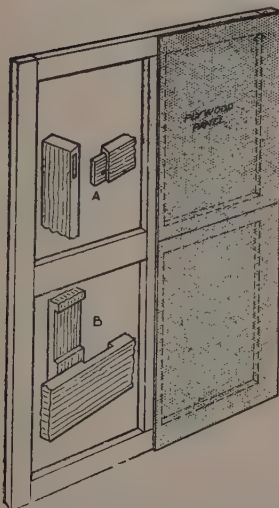


FIG. 7.—METHOD OF MAKING BACK.

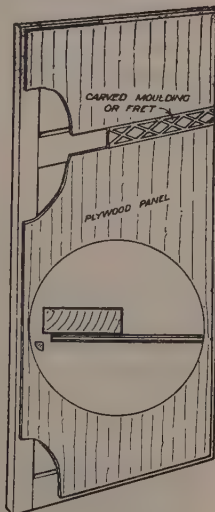


FIG. 8.—DOOR CONSTRUCTION.

edges. As the closing mould is $\frac{1}{4}$ in. wide, the plywood on both doors must stand in $\frac{1}{4}$ in. at these edges. The fret or carved moulding should be little thicker than the plywood. If the plywood is not perfectly flat, the provision of a second middle rail in the framework is advisable. Otherwise the large lower panel may bulge or cave in at the middle. It is not necessary if the plywood is flat.

CUTTING LIST:—

		Long. ft. ins.	Wide. ins.	Thick. ins.
CARCASE.				
2 ends ...	...	5 0	19½	78
1 top ...	...	3 6	20	78
1 top ...	...	3 6	18½	78
1 bottom ...	...	3 6	18½	78
1 partition ...	...	4 8½	18½	78
2 shelves ...	...	1 8½	14	88
2 shelves ...	...	1 8½	17	88
1 upright ...	...	0 8	14	88
1 frieze ...	...	3 6½	2	1
1 plinth ...	...	3 6½	4½	1
DRAWERS.				
1 front ...	...	1 8	4½	78
1 front ...	...	1 8	5½	78
1 back ...	...	1 8	4	88
1 back ...	...	1 8	5	88
2 sides ...	...	1 2	4½	88
2 sides ...	...	1 5	5½	88
1 bottom ...	...	1 7½	13½	ply.
1 bottom ...	...	1 7½	16½	ply.
BACK.				
3 stiles ...	...	4 9	3	¾
3 stiles ...	...	3 6	3	¾
2 panels ...	...	2 5	21	ply.
1 panel ...	...	4 9	21	ply.
DOORS.				
4 stiles ...	...	4 6	2½	78
2 rails ...	...	1 9	2½	78
2 rails ...	...	1 9	4	78
2 rails ...	...	1 9	3½	78
2 panels ...	...	1 0½	21	ply.
2 panels ...	...	3 3	21	ply.
TROUSERS HANGER.				
2 pieces ...	...	1 8	5½	¾
3 pieces ...	...	0 3	5½	¾
4 arms ...	...	1 5	2½	¾

Small interior fittings and other parts are not included. (382)

A NEW SAW VICE sent us by the See-Jay Manufacturing Company, of 245, Great Lister Street, Birmingham, appears to be a convenient and useful accessory. Seven inches long, it fits to the bench or worktable with a couple of screws and it will hold any kind and size of saw. The jaws are operated by two wing nuts, and (in black or red finish) the vice may be purchased for three shillings.

GURJUN is a hard and dense wood from Burma and the Andamans which is being used as a substitute for teak in many engineering shop for "logging," etc. (378)

CHIPS FROM THE CHISEL

MAKING PLANS

IT is strange what an extraordinarily stimulating time the Autumn is. It marks much more a beginning than an ending, in spite of the dead leaves which fall twirling off the boughs to lie in brown and golden ruin on road and garden. There is some new spirit abroad, which comes with the lighting of the little garden bonfires and the wonderful tang of the burning leaves, and a new note of crispness in the air. There is the promise of winter without its harshness, and we are incurable optimists enough to persist in looking forward, remembering the opportunities which winter can give without dwelling too much upon its inclemencies.

* * * * *

Educationists are wise in their generation when they make Autumn the opening of the year both for day school and evening classes, and last month saw the enrolment of many thousands of men and women in classes of all kinds, eager to respond to that something in the Autumn air which spurs ambition and nourishes hope. The influence of holidays must not, of course, be left out of account. In the lives of busy people holidays may sometimes prove the best occasions of all for a mental stock-taking, and we would wager that at least as many people return from their summer holidays filled with good resolutions as those who make them at the official beginning of the year. January 1st is not really a good date for new resolutions: it is no wonder that the old jest about broken resolutions is so closely linked with it. By January the outlook is apt to be very bleak. Winter is upon us in stern, bitter truth, and we have lost any remaining illusions about it; Christmas is already behind us, and there is a long, dark, uphill road between us and the Spring. Resolutions made at this time are half-hearted things, and it takes an almost super-human effort to persist in them. Human weakness, seeking for comfort, finds a passing comfort in breaking them.

* * * * *

But Autumn is different. All our hopes are ahead and woodworkers, feeling the spur like the rest, are planning what they are going to make and do in the long evenings to come.

* * * * *

A word of caution is necessary over the programme. For those who have joined evening classes—and we hope that many amateur woodworkers will be taking advantage of the excellent classes in woodwork and its allied handicrafts that are now available in most of the large towns throughout the country—for them there is, indeed, no particular difficulty. Their work is planned out by competent instructors, and they have the added incentive of working with others in class, and the element of rivalry this introduces, to keep them up to the scratch. But the individual, working alone, has to be a little wary in making his plans. In the first flush of good intentions it is very easy to plan too much, and

then succumb at last to discouragement in finding that not nearly all we have planned can be accomplished in the time. There was once a wise old journalist who wrote about what he called always leaving "a margin of time" if a man would assume some kind of control over circumstances, and he was right. We may always be sure that, whatever we plan, unforeseen circumstances will intervene somewhere, and if we have not allowed a margin of time for that cold in the head, that fit of not-to-be-denied laziness or tiredness or those unlooked-for visitors, we soon find ourselves toiling away in the rear of our programme and are soon inclined to give it up altogether in disgust. So first we need to make our winter plan a strictly reasonable one that will not fill every moment of our spare time. Next, and just as important, we have deliberately to allow for the point of discouragement.

* * * * *

It is a queer thing but in any considerable job a man undertakes that is in any way creative there comes a moment when it, so to speak, becomes inimical to him. His pleasure in it fades and he grows full of doubts and misgivings as to the success of the thing. It may arise out of a difficulty: a joint does not fit as truly as it should or there has been a slight miscalculation somewhere and he may have to exercise all his ingenuity to remedy the fault. It may, indeed, arise out of nothing more than a mood. The one thing certain is that in a job of any magnitude the point of discouragement will be reached and will have to be weathered. The experienced man knows the moment and knows how to deal with it, the recipe being patience with himself and his job and a certain deliberation, so that any hasty, botched work, put through in a panic, may be avoided. It is for the less experienced man that the danger lies, but if he can envisage it at the outset half the sting of the discouragement will be taken out when it comes. The great thing is to look at it firmly before he starts, and when it is upon him to remember "it's dogged that does it." Advice to be patient is generally unwelcome to a man in a difficulty, but that is what it comes to.

* * * * *

Patience is an odd sort of virtue, odd, that is to say, in its workings. At first its operations are rather like the cups of tea or coffee we drink at night if we are busy on an all-night job and want to keep awake. We can get very heavy-headed and perilously near sleep, but still they keep us going till there comes a moment when we get a "second wind" and for no apparent reason can go working on till dawn, and in a flush of new vigour and liveliness bring our job to a successful conclusion. So it is with any piece of creative work if we stick it out past the danger moments. They are the most painful moments of all, and call for the most painstaking, but once we are through them we have every hope of finishing our work triumphantly, and, be it said, with enjoyment and satisfaction to ourselves.

(385)

LIVING ROOM TABLE

GATE-LEG TYPE

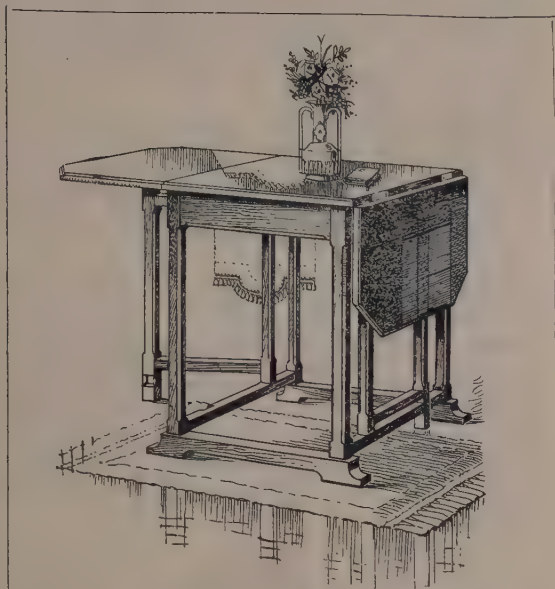


FIG. 1.—GATE-LEG TABLE FOR LIVING ROOM. SIZE 2 FT. 3 IN. BY 1 FT. 6 IN. EXTENDING TO 3 FT. 6 IN. BY 2 FT. 3 IN.

IN the compact home, where economy of space becomes imperative, the uses of a table that may be adjusted in size to fit more conveniently to the needs of the moment will be evident. To this end a gate-leg table should be found useful; and, made in oak on the plain simple lines indicated in Fig. 1, the effect should prove both neat and attractive.

Dimensions are: For the centre part, 18 ins. by 2 ft. 3 in., the flaps being 12 ins. by 2 ft. 3 in. so that when fully extended the whole thing opens out to 3 ft. 6 in. by 2 ft. 3 in. over top.

The general treatment is purposely kept on severe lines, relying upon a stopped chamfer for relief; and this, if finished to the natural colour, or a mere shade or two darker than the natural colour of oak, should yield a result that will readily win favour.

THE LEGS (A) should be carefully selected from well seasoned stuff as straight and long in grain as possible. These should be planed up clean and true, the upper part being mortised and the lower portion tenoned to enter right through base strut and be wedged. The angles of the leg will be chamfered, with the chamfers stopped $\frac{1}{4}$ in. below top rail and about $2\frac{1}{2}$ in. above the strut.

THE RAILS (B) enter legs with a couple of tenons as indicated in Fig. 9, or they could be dowelled into position with three dowels each end. The bottom edge will be chamfered and stopped $\frac{1}{4}$ in. from ends to agree with the leg.

The corresponding cross rails (C) will be tenoned into position so that the inner sides are flush with the inner faces of leg as on plan (Fig. 5). The joint may be pinned to stiffen it generally against the action of the gates in course of prolonged wear. It would also be possible to dovetail these rails into the respective legs.

THE BASE STRUTS (D) are mortised right through at a distance of about 3 in. from their extremities, and the tenons on legs when entered home and wedged will show a $\frac{1}{2}$ in. projection of the strut clear beyond the leg each end, with the remaining $2\frac{1}{2}$ in. shaped hollow. In addition to this the bottom edge of strut will be cut up with rounded corners to lighten the appearance of the part.

The leg framings thus made up will be connected by the stretcher rails (E), tenoned into position, which carry the gates, and these rails will also require notching to form a recess for the supporting leg of each gate to halve into when the table top is closed down as indicated on plan, Fig. 3. These stretchers will require neat fitting tenons, to be pegged, and when home should give a firm result for the table base.

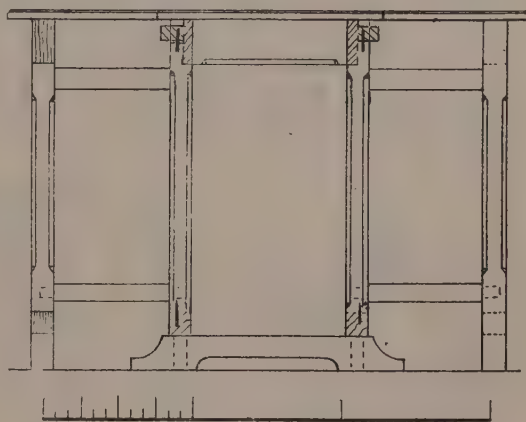


FIG. 2.—SCALE ELEVATION OF TABLE.

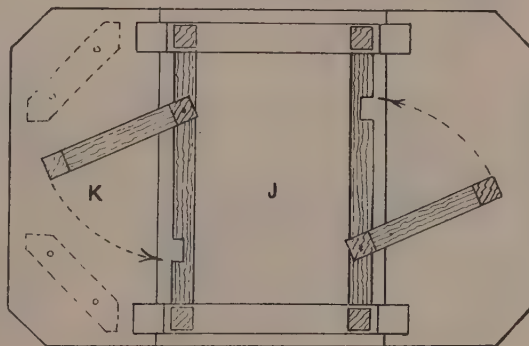


FIG. 3.—PLAN, SHOWING LEG ARRANGEMENT.

Should it for any reason be desired, however, a stretcher rail may be dovetailed into position midway between the longer rails (C), as Fig. 8, using 2 in. by 1 in. stuff.

THE PIVOT UPRIGHT (F) will be chamfered to agree with A. and will turn on a piano peg or screw entered top and bottom.

THE OUTER SUPPORTING LEGS (G, Fig. 10) should be of the same substance as the main legs, chamfered to agree, and will be mortised for rails as these occur above and below.

THE TOP RAIL (H) will be tenoned into position so that the bottom edge finishes clear of the bottom edge of rails (C), whilst the bottom rails (I) are tenoned into position, both being of a length to make up a gate a shade under 13 ins. wide. The upper part of the pivot leg (F) will require cutting away to the extent of the thickness of the rail (C) in order that a block may be fitted above to be glued and screwed into position for the entry of the pivot pin upon which the gate works. This is indicated in position in Fig. 10 and also on the elevations, Figs. 2 and 6.

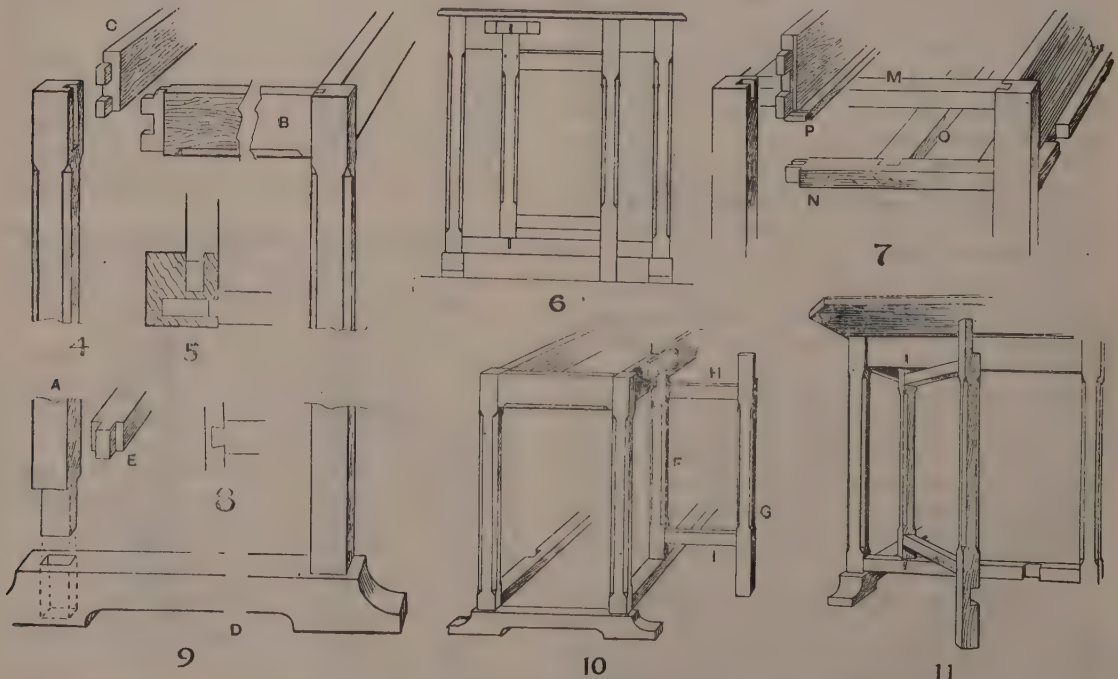
At Fig. 11 is shown an alternative method of fitting the gates, the pivot upright being entered into rails top and bottom to turn either upon a dowel or metal pin, and with the outer supporting leg notched above and below to allow it to close compactly within the projection of the centre part of table top. In this manner the pivot block will not be required above, a $\frac{7}{8}$ in. or 1 in. net by 3 in. rail being jointed in midway of the thickness of legs.

THE TABLE TOP (J) will set over the framing at front and back about 1 in. (see Fig. 3), but may be allowed an additional 1 in. projection if desired. The 1 in. projection will agree with the projection allowed for the edges to which the flaps are hinged.

In glueing up the stuff an eye should be kept upon matching the grain so that it has a pleasing contrast, and it will be best to groove all joints for the entry of cross-cut hardwood tongues as a stiffening hold; or, alternatively, the glueings may be dowelled together.

THE FLAPS show a drop of 12 in. and may be attached in plain fashion by good quality brass butt hinges; but for finish, if the worker is capable of dealing with it in the best manner, the rule joint is preferable. The corners of these flaps are canted (3 in. cants being allowed), and the outer edge of top throughout may be either moulded ovolo, or in the plainer manner have the top edge chamfered only. The centre top can be attached in position by pocket screwing through the rails, or it may be either buttoned or glue-blocked on.

It might be noted that a certain stiffening is achievable where desired by lining the flaps with lengths of $2\frac{1}{4}$ in. by $\frac{1}{4}$ in. hardwood, screwed on but set back out of sight line whilst at the same time being clear of the movement of the gates. The longer top rails of leg framing are frequently thicknesses up with 1 in. stuff to take a knuckled pivot, the suggested pivot block 6 in. by 2 in. by $1\frac{1}{4}$ in. being something of an economy.



FIGS. 4 TO 11.—VARIOUS DETAILS OF CONSTRUCTION AS PER TEXT REFERENCES.

As seen in Fig. 1 the table is without a drawer. As, however, many prefer to have a drawer fitted to a table, a sketch indicating the construction of the leg framings is given at Fig. 7. The solid rail (B) will be replaced by a top rail (M), dovetailed into position. Spaced about $3\frac{1}{2}$ in. lower than this rail, a bearer rail (N) enters legs with a couple of tenons each end. The drawer may travel upon a 2 in. by $\frac{1}{2}$ in. rail dovetailed into bearer rail (N) and corresponding 3 in. by 1 in. end rail (as at O); or, instead of this, runners (P) may be tongued each end into legs and be screwed up to side rails (C), the runners being sufficiently wide to project on the outer sides also so that they can be notched for the gate legs to halve into.

In passing, whilst a 3 ft. 6 in. x 2 ft. 3 in. size is indicated here a 3 ft. 0 in. size if desired may be made without variation from the details given above, although the legs may be reduced to $1\frac{1}{2}$ in. by $1\frac{1}{4}$ in. for chamfering. The only alteration suggested for a proportionate finish would be to finish the top 2 ft. 0 in. wide, in which case the flaps might be also reduced to a drop of $10\frac{1}{2}$ ins.

CUTTING LIST:—

		Long. ft. ins.	Wide. ins.	Thick. ins.
A	Four legs to fit	2 6	2	2
B	Two rails	1 4	$3\frac{1}{2}$	$\frac{1}{2}$
C	Two rails	2 1	$3\frac{1}{2}$	$\frac{1}{2}$ or $\frac{1}{4}$
D	Two base struts	1 11	3	$2\frac{1}{2}$
E	Two cross rails	2 1	2	2
F	Two pivot uprights	1 11	2	2
G	Two legs to fit	2 6	2	2
H	Two top rails	1 2	2	2
I	Two bottom rails... ..	1 2	2	2
J	Table top centre	2 3	18	$\frac{1}{2}$
K	Two flaps	2 3	12	$\frac{1}{2}$
L	Two pivot blocks	0 6	2	$1\frac{1}{2}$
If required:				
M	Two drawer rails	1 4	2	$\frac{1}{2}$
N	Two bearer rails	1 4	2	$\frac{1}{2}$
O	Centre runner	2 1	2	$\frac{1}{2}$ or $\frac{1}{4}$
Drawer fronts		1 1	$3\frac{1}{2}$	$\frac{1}{2}$

Sides and backs $\frac{3}{4}$, bottoms $\frac{1}{2}$ or plywood.

All lengths are full to allow for jointing, paring and fitting. Widths generally and all thicknesses are net. (356)

SIMPLE METHOD OF LINING AN OFFICE TABLE TOP

MOST text books tell us the best and most exacting methods to make a job, but few tell us a cheap and competitive method. Take for instance, the making and lining of a writing table top for office use. The usually accepted method is to glue and tongue pine boards together, as at P (Fig. 1), to make the interior part of the table top, which is to be covered with leather or leatherette. Around this core (P) the hardwood margins (H) are tongued and dowelled so that they stand above the core a sufficient distance to accommodate the leather. The leather is in due course glued or pasted in position and trimmed off, after which one has to engage the bookbinder to come along with his rollers, etc., to tackle the gilt and embossed lines. All this was costly even in the old days. A cheap and effective method of arriving at a similar result and which

answers the purpose for office work is given at Fig 2. First make a hardwood outer frame (H); secondly, make a pine frame (P) and cover it with 5 mm. plywood. Arrange the thickness of the pine frame (P) plus its plywood top, to be of such a size that it stands slightly below the hardwood marginal frame. Cover the inner frame (P) with rexine or leather cloth (C), stretching it tightly and fastening it to the edge of P with $\frac{1}{2}$ in. ordinary tacks. Place the covered frame (P) into the outer frame and skew nail it in position. Fix the completed top on to table by pocket screwing, and the protruding parts of the top of the legs will hold and prevent the inner covered frame from sagging. No glueing will be necessary, with its consequent shrinkage of the leather cloth or the core, and the method gives quite a good finish for commercial use. (348)

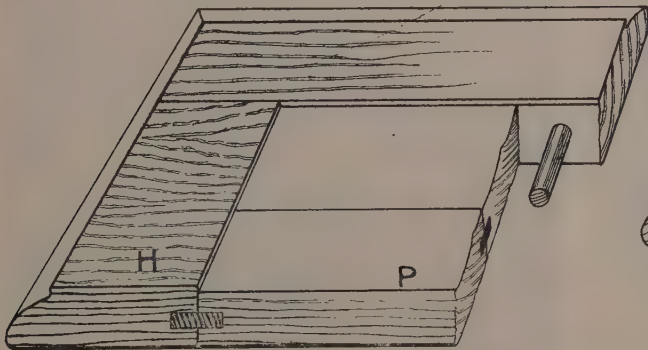


FIG. 1.—USUAL METHOD OF BUILDING WRITING TABLE.

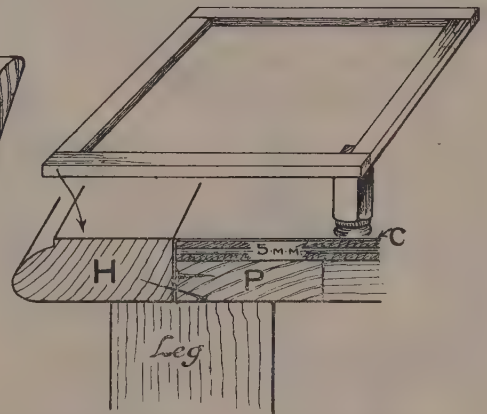


FIG. 2.—SIMPLE ALTERNATIVE METHOD.

HOW TO MAKE BARRED DOORS

THE breaking up of a plain surface such as a large sheet of glass or the panel of a door by the fixing of either straight, curved or moulded and decorated bars gives a pleasing effect of light and shade; and this type of work is generally referred to as barred or tracery door work. Sheraton, Chippendale and Hepplewhite employed this type of decoration with wonderful effect long before the necessary parts of the mouldings could be wrought by machinery, and it is a pleasure and an education to examine some of their hand-made cabinet and bookcase doors. Nowadays things are different, and at almost any woodworkers' supply stores the astragal moulding and the rectangular strips for the bars may be purchased at about twopence per foot. For the benefit of our younger readers we may state that the word "astragal" is of Greek origin, meaning a knuckle bone. Woodworkers use the word to denote a small semicircular moulding or bead, but sometimes it is loosely used for mouldings that are not always semicircular (see Fig. 4 at H).

THE SIMPLEST METHOD of obtaining a tracery effect is to fit into the rebate of the door frame a piece of 3 mm. or 5 mm. plywood and to mark out on this plywood panel a suitable design which is then carefully fretsawn to the marked pattern. This fretcut panel or grille is stained and polished to match the door frame and is fitted into the frame immediately in front of the glass. A few spots of seccotine may be applied between the wood and the glass, after which it is weighted down until the adhesive dries. This method, however, is not true barred door work. A second method of obtaining a similar effect, but more nearly related to a true barred door, is to use a carved wooden ornament at the junction of the cross bars, as suggested at Fig. 1. It will here be observed that the bars (R) are of a rectangular section measuring about $\frac{1}{2}$ in. by $\frac{1}{4}$ in., and that they are half lap jointed on to the carved ornament and into the edge of the door frame. All these joints rely upon glue to hold them in position, but it is good workshop practice to glue a piece of thin tape behind each joint so as to cross-lap and strengthen them. In this as in the previous case the bars and the ornament or orna-

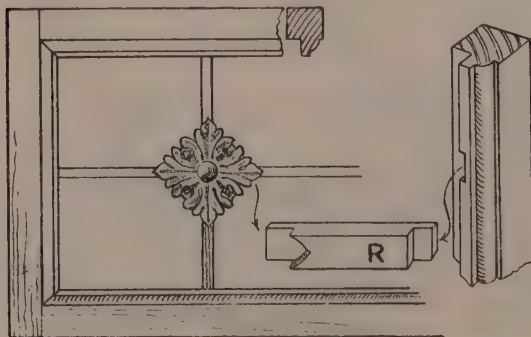


FIG. 1.—ILLUSTRATING IMITATION BARRED WORK.

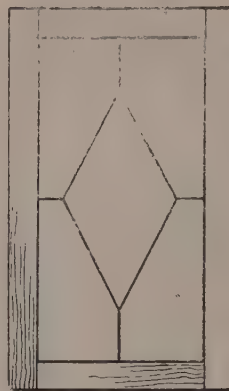


FIG. 2.—BARRED DOOR.

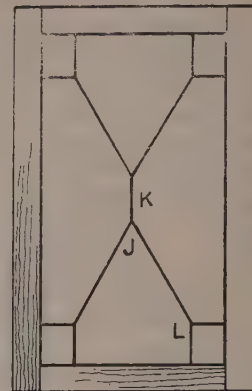


FIG. 3.—ANOTHER DESIGN.

ments are stuck down to the face of the glass. This method probably gives the best imitation of a real barred door.

THE TRUE BARRED DOOR.—At Figs. 2 and 3 are given two simple designs for a barred door proper, and in such cases each piece of glass is separately put into its own rebated frame. The outside frame is first made by either the dowelled or the mortise and tenon method, and the moulding around the inside edge of the frame consists of a suitably sized ovolo moulding. The rebate is also worked out of the solid wood, and it is usual to keep the rebate in alignment with the quirk or square of the ovolo. This will enable the worker to obtain a square joint at the shoulder of his cross rails, because it will facilitate either the dowelling or the tenoning operation.

Fix temporarily on the back of the frame or frames a piece of 5 mm. plywood and then set out the design with a fine pencil. Two lines will be required on the setting out, so that the thickness of the edge of the rectangular slip can be defined. Take, for instance, Fig. 4 (which shows one corner of the frame given at Fig. 3 enlarged). Build up the pieces F by dovetailing their ends, and carefully mortise the rebates of the door frame to receive them, marking and putting them in position unglued for the moment. Mitre and dovetail key (saw-kerf fashion) the pieces for the angle (J, Fig. 3) leaving them 1 in. longer than the finished length. Allow the glue to set and then proceed to fit in these diagonal pieces, jointing them to the small squares (L) as shown enlarged at G, Fig. 5. These joints are simply glued. The piece K is joined to the diagonals in the same manner, i.e., as at G.

FITTING THE ASTRAGAL MOULDS.—When the whole of the rectangular bars have been correctly fitted, glued and set, the time is ripe for the fitting of the astragal moulds. The astragal moulds can be purchased either grooved, as at B, or without the groove, as at A. We might here state that the beginner will do best with the type shown at A because the other pattern is more difficult to fit. The ends of the astragal moulds,

which fit on to the door frame proper, are scribed on to the ovolo moulding as at C. The internal joints are, however, mitred together as suggested at Fig. 6. To obtain the correct mitre line it will be necessary to bisect the angles as illustrated at Fig. 6, and this is of course nothing more nor less than a simple problem in geometry and calls for no remark. The writer's experience is that the scribing of the astragal mould (see sketch marked "scribed") is best accomplished by sawing the straight parts with a fine saw and then paring the concavity of the astragal with a narrow and sharp penknife blade. This method appears to be quicker and to give better results than paring with the chisel and gouge. After the barred door is completed each piece of glass is cut to fit its respective recess, after which the glass may be beaded in position as at D, or puttied in as at E. If beads are used their corners are neatly mitred and they are

fixed to the bars with very fine panel pins. On the other hand, it will be necessary to work into the putty suitable dry pigments such as vandyke brown for walnut and venetian red for mahogany, or a little ochre for oak work. In short, putty must of course be coloured to match the polished woodwork. To turn out neat and effective work the astragal moulds and the inner edges of the door frame should be stained, filled-in and bodied up with polish before they are fitted in position. Then, after completion, a few rubbers of polish will bring up the body to leave a clean and bright finish. Those of our readers who are interested in the more complicated examples of barred door work such as bent and circle upon circle work should turn up the chapter in our handbook entitled "Doormaking," price 2s. 6d., where the development of curved surfaces is clearly worked out. (340)

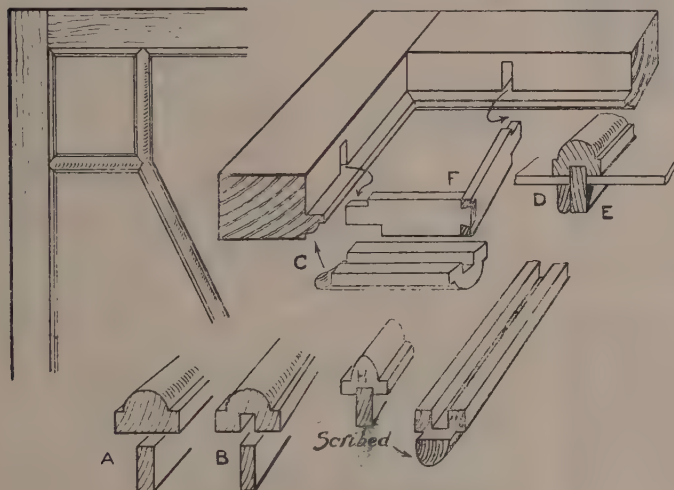


FIG. 4.—DETAILS OF BARRED DOOR WORK.

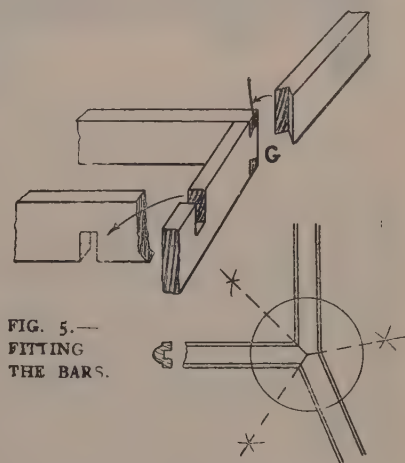


FIG. 5.—FITTING THE BARS.

JACOBAN OAK COLOUR, less fashionable than it once was, but still popular, varies considerably in shade. One of the simplest, quickest, and most successful methods of obtaining a satisfactory colour is to stain the work with Johnson's wood dye to a suitable colour. Their Nos. 140, 178, 172 and 125 are all varying shades which might be termed Jacobean. When this wood dye is dry, say, in four hours, give the work a coat of brush polish which, when hard, should be glass-papered down and the work completed by wax polishing. Alternatively, the work can be brought to a dull gloss by successive coats of polish, which is freely worked on to the wood with a fairly moist polish rubber. No attempt, however, should be made to fill up the grain with polish or wood fillers.

GOLDEN OAK finish is obtained by staining the work with a saturated solution of bichromate of potash. Dissolve bichromate of potash in warm

water (as much as the water will dissolve), and apply it to the oak when cold. Fill in with a suitable paste filler, size or skin in the work with polish, give successive bodies of polish and spirit the work out.

WEATHERED OAK is the finish generally applied to outdoor railings and gates which are of cleft oak. An application of lime water is the simplest method of obtaining this effective finish, but note that this does not mean that the work is lime washed. Strain the lime water from off the slacked lime and use it as a stain.

TO IMITATE BLACK OAK stain with brunswick black, thinned down with turpentine. Fasten this stain with a few rubbers of brush polish. skim the work with glasspaper and finish with a wax polish.

THE HANDICRAFT CENTRE

AN ATTRACTIVE SMOKER'S CABINET ON MODERN LINES



FIG. 1.—DESIGN FOR A SMOKER'S CABINET.
LENGTH, 15 INS.; HEIGHT, 12 INS.

THE drawings illustrate a simply constructed and neat smokers' cabinet, the most suitable timber for which would be walnut, although mahogany or oak would serve the purpose equally well.

Plane up all the material for the carcase, being careful to keep any good grain effect for the outside. Take the top and bottom pieces (B) and pair them, *i.e.*, place so that the face sides and face edges come together and mark out the sockets for dovetail joint and the trench for division (E) in the bottom piece. The sockets should then be very carefully cut with a dovetail saw. Now separate the pieces for the removal of the waste material.

The ends (A) may next be marked out. These are also paired, marked to length (the thickness

of the top and bottom pieces being allowed for jointing) and the trenches for shelves (F and G) marked out. Mark the pins of dovetail joints from the sockets in pieces B and cut out carefully to the lines. The trenches may next be cut out to the gauge lines and cleaned up to the required depth with a router.

Fit all dovetail joints into position; then plane all shelves to the required length on a shooting board and fit them into place.

Set up a cutting gauge to the thickness of the plywood back and cut out the rebate very carefully. The pieces may now be taken apart and the insides of the job cleaned up.

GLUEING-UP.—Have ready hot glue and some rag or clean shavings for wiping off surplus glue. Glue the pins of the dovetail joints very carefully and fit each one into its place and drive joint home. Clean off any surplus glue and then square up the job and allow to set. When this has set, fit the shelves and plywood back into place. The work should then be cleaned off carefully with a smoothing plane, scraper, and glass-paper, and any twist in the front must be carefully planed out.

If the model is made (as intended) for a smokers' cabinet the pipe rack should now be fitted into position and secured by means of screws through the plywood back. The $\frac{1}{2}$ in. diameter holes are bored neatly with a centre bit and the remaining shaping done with tenon saw and chisel. The rack should be cleaned off thoroughly with glass-paper before it is fixed in position.

THE DOORS should preferably be made from plywood 9 mm. or 12 mm. thick. Match the two edges of the plywood which meet; then cut the rebates carefully with a tenon saw, and clean up with a finely set rebate plane. The doors should now be cut to the required size and the shaping done. Shaping may be carried out as shown in Fig. 2 or otherwise as desired. Simple curves will be the more suitable.

When this has been done the position for inlay

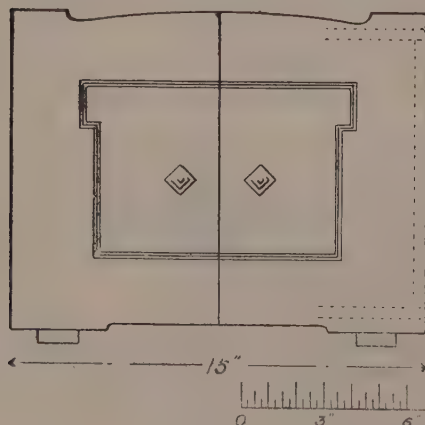


FIG. 2.—ELEVATION, WITH SCALE.

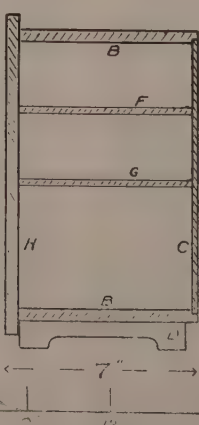


FIG. 3.—SECTION.
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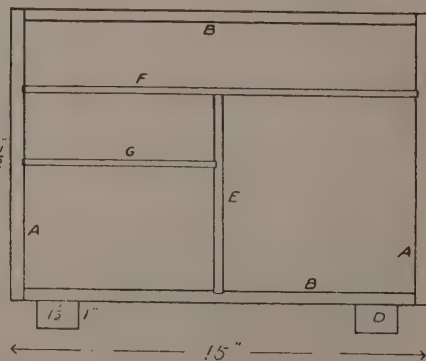


FIG. 4.—INTERIOR ARRANGEMENT.

banding should be carefully marked out and the cutting done with a very sharp knife until one layer of the plywood has been cut through. This layer may then be removed by means of an $\frac{1}{8}$ in. chisel, and the banding can be fitted into position. Glue the banding neatly in, and after the glue has set clean up carefully with scraper and glass-paper.

The doors are now ready for hanging, and it is suggested that the hinges be screwed to the doors and their thickness cut out from the cabinet ends, in order to prevent the possibility of screws coming through the face of doors. Fittings made up of erinoid may be used if desired, and these should be fixed into place at this stage. They should be removed before the final clean up and staining.

Take the feet (D), shape them, clean up very carefully and glue them into place. The work must now be thoroughly looked over for any faults, and any defective cleaning off corrected.

The cabinet may be stained to a desired shade, then waxed or french polished; or, if preferred, it may be left in the natural colour and merely wax-polished.



FIG. 5.—THE PIPE RACK.

(To be fitted at back of right hand compartment).

The Cutting List is as follows:—

		Long.	Wide.	Thick.
		ft. ins.	ins.	ins.
A Two Ends		0 11	7	$\frac{1}{2}$
B One Top		1 3	7	$\frac{1}{2}$
One Bottom		1 3	7	$\frac{1}{2}$
C One Back		1 3	10 $\frac{1}{2}$	ply
D Two Feet		0 6 $\frac{1}{2}$	1 $\frac{1}{2}$	1
E One Partition		0 7 $\frac{1}{2}$	6 $\frac{1}{2}$	$\frac{1}{2}$
F One Shelf		1 2 $\frac{1}{2}$	6 $\frac{1}{2}$	$\frac{1}{2}$
G One Shelf		0 7 $\frac{1}{2}$	6 $\frac{1}{2}$	$\frac{1}{2}$
H Two Doors		1 0	8	
Pipe Rack		0 7 $\frac{1}{2}$	1 $\frac{1}{2}$	$\frac{1}{2}$
Inlay Banding		3 0	$\frac{1}{8}$ or $\frac{1}{16}$	9mm.

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Handicraft (Woodwork) Examination Classes

THE LONDON COUNTY COUNCIL is now holding a series of courses in preparation for the first and second handicraft (woodwork) examinations of the City and Guilds of London Institute. The courses have been arranged in view of the provisions of the Board of Education Circular (of 2nd March, 1927) which will admit to temporary recognition by the Board as handicraft instructors suitable persons who pass the revised first handicraft examination and to permanent recognition on passing the second examination (groups A and B).

The classes will be held weekly till May, 1931, at the Shoreditch Technical Institute, Pitfield Street, Hoxton, N.1., and the subjects taught will be as follows:—

First Examination.—Woodwork (theory and practice), English and Arithmetic.

Full Certificate.—English, Mathematics and Science (First Year Course).

Principles of Teaching, Woodwork (Theory and Practice) and Bookbinding (Second Year Course).

A class in metal work will also be held.

Employees in the woodwork trades who may have an inclination to become teachers of handicraft are advised to procure a copy of the City and Guilds of London Institute Handicraft programme which may be obtained through any bookseller or direct from Messrs. Lamley and Co., 1—5, Exhibition Road, S.W.7 Application for admission to the above classes should be made direct to the Principal at the Shoreditch Institute (address above).

BOMBAX is a very light timber, cut from the silk cotton tree of India.

LINENFOLD PANELS.—The woodworker of to-day might well like to see a Gothic or Tudor woodworker's outfit. He certainly possessed no moulding planes equalling the modern kind, yet probably he was frequently a skilful all-round craftsman, expert in the carving of such details as the ribbed and otherwise decorated mouldings with shaped ends, known as linenfold and parchment patterns, which were introduced in panel decoration during the last quarter of the fifteenth century. The linenfold was based upon and emblematic of the veil covering the chalice at the consecration of the Host in Catholic ritual; it appeared towards the conclusion of the Gothic era in French architecture and Flemish furniture, and thence travelled to England. The parchment pattern was derived from the parchment scrolls upon a rod. Linenfold and parchment designs merge and blend in a somewhat confusing way, but the chief distinction between the two is the introduction of the rod round which the parchment scroll is wound.

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STUART TABLES.—Until Cromwellian days the dining-table rarely exceeded 2 ft. 4 in. in width. After the Restoration a greater sense of security prevailed, and the narrow table, at which the guests were served at the opposite side, sitting with their backs to the wall and protected by the table in front in the event of an enemy's sudden entry, was finally abandoned for a broader board in the centre of the room, at both sides of which guests could sit and be waited upon from behind. The draw-table, introduced from the Continent in Elizabethan days, was still three or four inches higher than the dining-table of to-day. Its melon-ball bulbous member continued popular during the earlier part of the period, and was even placed for awhile upon the severe straight or pillar leg which succeeded it.

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THE CHOKING PLANE

THE CAUSE AND THE CURE

ANY old stager in the woodworker's gentle art will tell you how much better it is, when requiring a new plane, to make one for yourself (excepting, of course, the irons) rather than buy one. As a rule, a new plane is a *choking* plane.

Now, although it may be difficult for the amateur to construct his own tools, it is not impracticable for him to correct the deficiencies of any he may buy. For deficiencies there will be, in wooden planes especially. Of these faults choking is the most frequent, as it results from many other minor errors in the plane's adjustment.

of a piece of wood. The shaving continually curls up tight and perhaps makes the iron dig deeper (see Fig. 1). If one of the tiny spirals be opened out the shaving will be seen to be cracked at intervals. Now measure the intervals. They will be seen to be the same as the distance of the edge of the blade from the edge of the back-iron. This shows the function of the back-iron.

But the shaving could not be forced from the plane by this means alone, and to do this the plane mouth is shaped as in section in Fig. 2. The thickened line represents the front of the throat, and before the shaving has time to choke the mouth by curling up in it, this wall pushes



FIG. 1.—FUNCTION OF THE BACK IRON.

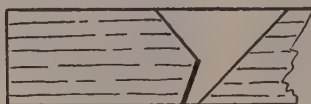


FIG. 2.—SHAPE OF MOUTH.

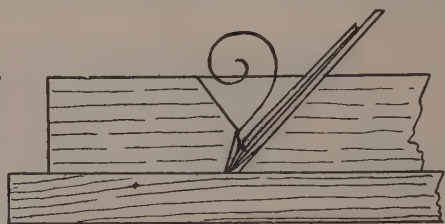


FIG. 3.—HOW SHAVING CURLS UP.

But the experienced man will know the reason why his plane is choking and how to permanently cure the defect; whereas, from experience of the doings of amateurs, the first thing to happen to a choked plane in inexperienced hands will be the insertion of some sharp-pointed instrument (usually of steel), which removes the present shavings and incidentally gaps the plane iron.

The simple fact about planing wood is this. The familiar curling of shavings is due to the back, cap or cover-iron of the blade cracking them and bending them but not breaking them. When this process goes on properly the shavings are long and show slight fractures at equal distances along the strip. A sign that your plane is working well is the emergence from it of long, thin shavings.

We shall see, however, that the efficiency of the plane does not depend wholly on the keenness of the blade.

THE CUTTING IRON.—As a first experiment take out the blade and back-iron of a wooden jack-plane and, using them like a chisel (with back-iron still in place), cut a shaving from the edge

it up and back, clear of the blade (Fig. 3).

CAUSES OF CHOKING.—We may now be able to see the reasons why the following things may choke a plane.

First, suppose the blade was for some reason too close up to the front of the mouth, this would not allow the shaving to pass easily up the iron and would obviously choke the plane. This may be caused by the blade being too thick or the mouth too narrow. In no case widen the mouth, except as a last resort. A slight alteration of the angle of the blade by means of glueing a strip of thin wood at the back of it usually remedies this cause of choking. The piece of wood may be taken off if at any time the sole of the plane is shot, thus widening the mouth. But, if the mouth is pared, when the plane is new, this may easily be overdone and make the plane no use for fine planing at all.

Secondly, if the end of the back-iron should be too thick or too much curved the shaving will either be broken, or will be forced against the front of the throat so much that it will roll up in the mouth of the plane and choke it. The remedy for this is illustrated at Fig. 4, where a back-iron is shown before and after treatment. A shows the correct section of the back-iron; B the wrong section; A can be obtained by careful use of the file and emery cloth.

Third: Yet another cause of choking planes may be the fact that the shaving taken is too wide. This means that the plane iron is not ground correctly. A plane-iron should never cut at its edges, but should be curved as in Fig. 5. If the iron is straight across (as it may be when new) grind it, so that it is curved.

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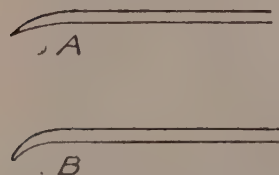


FIG. 4.—RIGHT (A) AND WRONG (B) FORMS OF BACK IRON.



FIG. 5.—CORRECTLY GROUND IRON.

HOME CARPENTRY

THUMB MOULDINGS—THE CABINET SCRAPER.

GENERALLY speaking the work of the home carpenter can easily be distinguished from that of the trade craftsman by its absence of freely and evenly worked mouldings. The thumb moulding is probably one of the easiest for an amateur to attempt. No expensive or fancy planes are required for the job; in fact it may be accomplished with a saw, a chisel, a rebate and a jack plane if careful attention and patience be given to the work.

The method of procedure is as follows. Take a strip of wood about 2 ins. wide by $\frac{3}{4}$ in. or $\frac{1}{2}$ in. thick and secure it in the desired position by using two G cramps (Fig. 1). Then take the tenon saw and, using the temporary wooden strip as a guide, proceed to make a saw kerf which should be of approximately the same depth as the square or fillet portion of the moulding.

After cutting the kerf as at Fig. 2, roughly pare out the waste wood (B Fig. 3) with a chisel, and ease it smooth by using a 1 in. rebate plane. The next step is to chamfer or bevel away the piece C, Fig. 4. This may be done with the jack plane by holding the plane at the required angle. The top frame may now be turned upside down and the corner is again worked away with the jack plane as at Fig. 5.

Follow on by planing away any protruding corners or sharp edges until they are gradually rounded up, and then turn the frame over again and proceed to work up the moulding with the rebate plane as suggested at Fig. 6. The left hand should grasp the front of the plane and the tips of the fingers should protrude slightly under the sole of the rebate plane so as to form a guide along the edge of the wood. The moulding should be worked across each end of the frame before proceeding to mould the long edges which

run in the direction of the grain. By so doing, any shattered edges which occur at A, Fig. 6, during the first operation will eventually be removed when moulding the long edges. All that remains to be done is to carefully glasspaper the made moulding with successive grades of glasspaper. The glasspaper may be used with the fingers and thumb, which will adapt themselves to the shape of the moulding; or, if preferred, a piece of yellow pine may be carved out to fit a portion of the mould and the glasspaper folded around this (see inset, Fig. 6).

After the moulding is completed damp it with warm water so as to swell up the grain; when this has dried in a natural manner re-paper the moulding with No. 1½ grade paper. The swelling and repapering have a tendency to remove any inequalities which might afterwards show when the work is stained and polished.

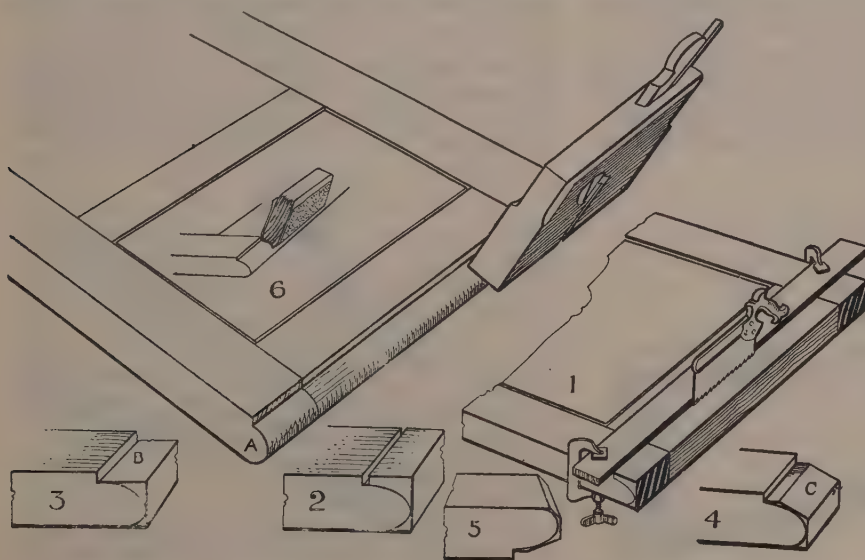
The Steel Scraper.

Another difficulty which will probably arise in the making up of oak and other hardwood jobs is using and sharpening the steel scraper, and as it is next to impossible to properly finish cross grained hardwoods without using the scraper we give the following hints on its manipulation.

THE STEEL SCRAPER is used by grasping it with both hands, tilting it forwards to find its correct cutting angle, and pushing it forwards over the surface of the work to remove a fine shaving which eradicates any plane marks or torn wood fibres which have been left by the planing operation. Fig. 7 shows the usual procedure of pushing the scraper with the thumbs, but in practice it will be found that the scraper very quickly becomes hot and uncomfortable to handle, and therefore when this occurs the user changes his position and pulls the scraper along instead of pushing it.

Where the corners or joint of a frame come together the scraper may be used in a diagonal manner so as to avoid "lugging" or tearing up the wood at the juncture of the joints. The scraper if correctly conditioned cuts a thin clean shaving, but if incorrectly sharpened it has a tendency to remove the wood in a powdered form.

At Fig. 8 is illustrated an end view of a scraper which is properly prepared ready for sharpening. It will be ob-



FIGS. 1, 2, 3, 4, 5, 6.—STAGES IN THE WORKING OF A THUMB MOULD.

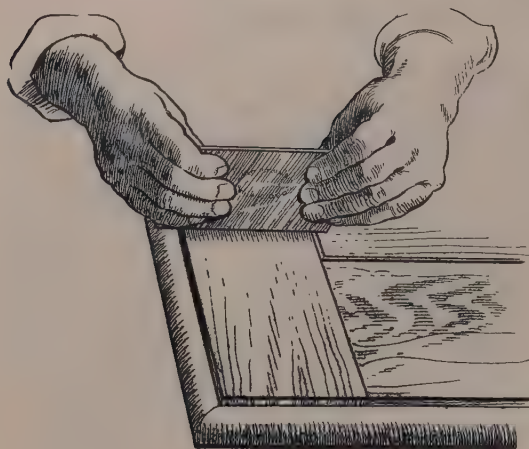
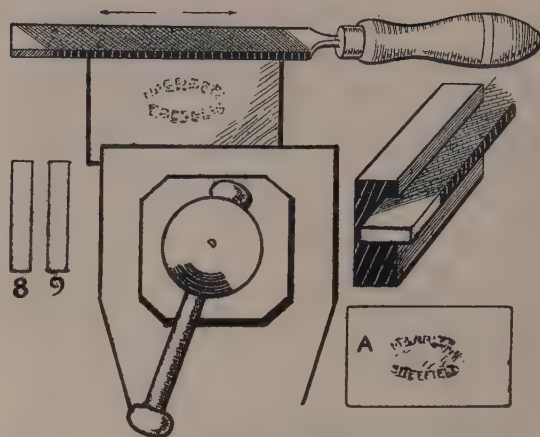


FIG. 7.—HOW TO HOLD SCRAPER WHEN CLEANING UP HARDWOOD.

served that its edges are at right angles, and it is essential that both its sides and its edges be highly polished and free from defects. In fact, at this stage all its edges should be sharp and ready for turning over or "tuning," so that it will (when sharpened) appear as at Fig. 9.

Here then is the method to obtain such an edge. Place the scraper in the vice and, taking up a finely cut engineer's file, level up the edge as at Fig. 10, after which slightly ease off the corners to prevent them scarring the wood (see inset A, Fig. 10). Inexperienced workers have great difficulty in keeping the file steady and at right angles to the scraper blade, and here is a suggested method to overcome this difficulty. Make a block of wood about 6 ins. long, having a groove in it to tightly fit the file. If this file container be held up to the side of the scraper the workman will have absolutely no trouble in keeping the file steady and at right angles to the blade.

After filing it will be necessary to polish up the edge so as to remove the file marks, and this is best done as at Fig. 11, the scraper being rubbed to and fro along the edge of the oilstone with the



FIGS. 8 AND 9.

FIG. 10.—METHOD OF FILING THE EDGE OF SCRAPER.

side of the wooden oilstone-box acting as a guide to ensure that the scraper is kept in a truly vertical position. Alternatively the scraper may be held as at Fig. 11, and then the lid of the box may be put in position and the scraper may be rubbed down between the box and its lid so as to prevent any side wobble. When all the file marks are removed from the scraper edge it should be placed flatways on the oilstone as at Fig. 12, and in turn each side must be rubbed down. After completing these operations the scraper should show a sharp edge as Fig. 8.

TUNING.—Next we come to the tuning or sharpening proper. Hold the scraper on the bench with a piece of rag interposed between the edge and your hand (Fig. 13) to prevent marks or cuts in the flesh; then take in your right hand a piece of stiff hard round steel, or, say, the back of a $\frac{1}{4}$ in. gouge. Damp the gouge, and, starting at the bottom, stroke upwards, going gently at first and then gradually increasing the pressure as the cutting edge is formed. Seven to ten upward strokes are usually necessary, and at the commencement of the first stroke the scraper sharp-

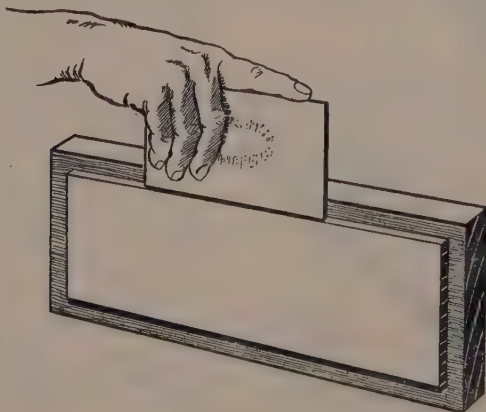


FIG. 11.—RUBBING DOWN EDGE AFTER FILING.

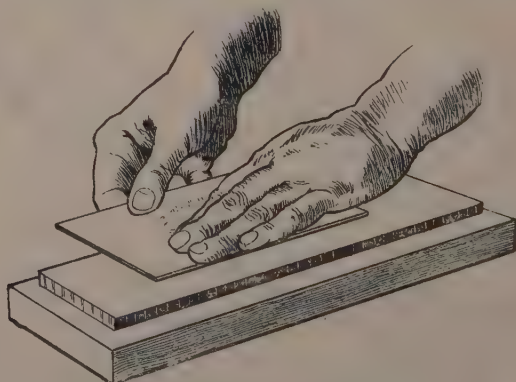


FIG. 12.—RUBBING DOWN FLAT SIDE ON OILSTONE PREVIOUS TO "TUNING."

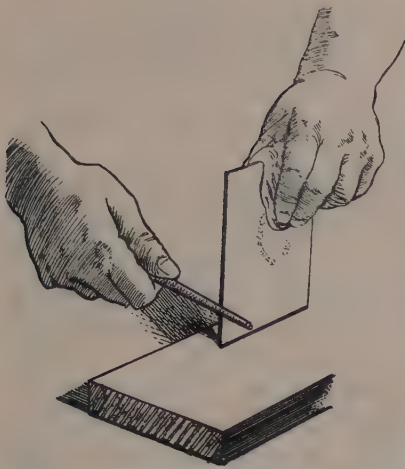


FIG. 13.—"TUNING" (OR TURNING) EDGE OF SCRAPER.

the cutting edges, and the scraper should then be ready for use.

When a scraper becomes blunted it can to some

extent be reconditioned by burnishing the sides as at Fig. 14, after which the tuning operation given at Fig. 13 is again gone through. Bear in mind that the steel scraper is one of the most difficult of all the woodworking tools to sharpen, and even the professional workman occasionally misses obtaining a good edge when re-conditioning his scraper.

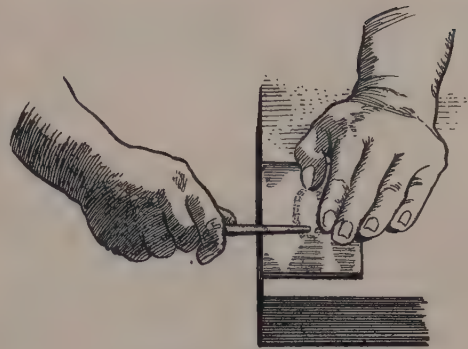


FIG. 14.—BURNISHING THE SIDES (OR RECONDITIONING).

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JACOBAN UPHOLSTERY

STUART UPHOLSTERY.—The Company of Upholsterers is stated to have been founded as early as the middle of the fifteenth century and to have received a grant of arms from Edward VI. We are told upon better authority that Cornhill was the headquarters of the upholsterer in those days when the Tottenham Court Road was a grassy lane, famed for flowers and innocent of furniture, and that the upholsterer originally dealt also in old clothes, old armour, beds, and combs. Probably the brilliant colourings of the velvet, silk, or needlework fabrics contributed as greatly to the vogue of upholstered furniture as the increased comfort. Cushions were used for the caned furniture, as they had been for its more solid forerunners; whilst at times the old wall hangings were cut up for use as covering fabrics.

The Commonwealth was, upon the whole, a good friend to the chair-maker, since the Cromwell chairs brought over from Holland in such quantities swept aside the last vestige of etiquette of the seat. These broad square and squat chairs of the Commonwealth are strongly typical of the Roundhead. From about 1650 front rail stretchers were raised more from the floor, or set back under the seat; the floor was kept cleaner, and the feet could without discomfort be placed under the chair. A type of chair having deeper and enriched front rails was thus encouraged. The Cromwell chair had a low padded back, and seats covered with leather or brocade, studded with the large gilt or brass-headed nails in vogue, an open space invariably being left between the back and the seats. In the slightly higher chairs this space was lessened, the plain panels nearly reaching to the seat, which was sunk panelled so that the cushion might bed therein.

Though throughout Stuart days chairs were made with solid wood panelled back of the late Elizabethan pattern, from the Restoration chair-backs became more open, and pierced wooden scroll-work was very generally used as a frame for cane and for perforated slats. With the accession of Charles II came the deepening, and carrying with pierced work, of the two horizontal back rails and the upright inner rails.

Many and varied as are the patterns of later Carolean chairs, they are almost invariably high backed, with spiral or spindle-turned posts and with carved scroll-work, sometimes supporting central cane panelled backs and surmounted by a crown: whence their title of Restoration chair to emphasise their owners' loyalty. The under rails connecting the front legs were also carved and scrolled.

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"THE REED ORGAN: ITS DESIGN AND CONSTRUCTION" (5/-) is the title of a small handbook by H. F. Milne (author of *How to Build a Two-manual Chamber Pipe Organ*), published from the offices of *Musical Opinion*, 13, Chichester Rents, W.C.2.

"HOUSE BUILDING FOR AMATEURS" is the rather daring title of the latest volume in Messrs. Cassell's 2/6 "Work" Series. Written and illustrated by E. W. Hobbs, however, the reader may be assured of instruction which is eminently practical. The little volume is well illustrated, and not only the index but also the table of contents have been drawn up in a way that enables a man to find at once what he wants. Address: Cassell's, Ltd., La Belle Sauvage, E.C.4.

THE QUESTION BOX

QUESTIONS only of general interest can be answered in these columns. Readers will kindly note:—(1) Detailed replies or sketches cannot under any circumstances be sent by post; but, as the Editor may require further information, a stamped addressed envelope should be enclosed. (2) Full particulars of what is required should be clearly stated, and (if possible) a rough sketch with over-all sizes enclosed. (3) Questions of purely personal interest cannot be dealt with in these columns.

VOTE.—With each Query must be sent a Coupon (see foot of page iv. of cover). All queries to be addressed: Editor, THE WOODWORKER, Montague House, Russell Square, London, W.C.1.

Wood Fillers

O. H. (Barnoldswick) has had various difficulties with his home-made paste fillers, and asks if it is preferable to use the proprietary article.

REPLY.—Proprietary wood fillers are to be preferred to home-made fillers because the ingredients, such as ground rock, crystal quartz, oil, japan and the necessary colours are specially ground and sieved through silk mesh by machinery, whereas the home-made variety, of which the basis is whiting, pumice, plaster-of-paris and ground earth colours blended in oil, turpentine and japan gold size are as a rule only roughly crushed by the home worker. Home-made fillers of the whiting or plaster variety have a tendency after the work is completed to bleach and show white in the grain, especially after the work has stood for a couple of years. To obviate this difficulty to some extent either venetian red ground in turpentine or vandyke brown ground in turpentine could be obtained, and when this is added to the whiting the colour will be to some extent absorbed so that the whiting or plaster is coloured throughout. The red would be added for a mahogany filler and the brown for a walnut filler or in some cases a little of both colours would be required. A little yellow ochre ground in turpentine should be added to the fillers which are to be used on the lighter woods. Practically all the usual painter's colours can be obtained in pound tins with the various pigments ground in turpentine at almost any decorators supply stores.

For close-grained woods many workers omit the filling-in paste or liquid, as they prefer to use a mixture of french polish and spirit varnish immediately after staining and give the work coat after coat, taking care to rub the surface quite flat and dead-looking between each coat. If coat after coat be applied without rubbing down, the same amount of lac or other gum deposit is floated on both the "hills" and "valleys" and the worker will never arrive at a flat surface, although he will succeed in obtaining a heavily varnished surface. (300)

To Size and Varnish Hazel Pine.

P. K. (Caledon) has made a small bookcase in hazel pine and asks what finish we would advise, as he has had no experience.

REPLY.—As you state that the wood is of a uniform brownish colour we should advise the following finish which is fairly simple even for an inexperienced worker. Dissolve 1½ ozs. of Cannon's or other reliable make of concentrated size in 1 pint of warm water. Stir well and, whilst it is lukewarm, give the work a coat of this size with a fine bristle brush. Size the job both inside and outside, otherwise the hazel pine wood will warp and twist. Next day glasspaper the surface (the grain of which will have raised) until quite smooth with No. 1 grade Oakey's glasspaper. Dust the work and apply with a gilder's mop brush a coat of french polish which may be made by dissolving 6 ozs. orange shellac and 1 oz. gum sandarac in 1 pint of methylated spirits or, say, double the quantities to make a quart.

When dry again ease the surface this time with No. 0 glasspaper, and repeat the brush coats with intermediate rubbing down processes until you have given the work at least six coats. If the wood is spongy it may require eight or nine coats to obtain a decently varnished surface. Alternatively, you could follow the above instructions until you arrive at the third coat of brush polish: then rub the work down and apply one coat of hard pale inside oak oil varnish. The latter would be the easiest method if you have previously used an oil varnish. If you wish to stain the hazel pine use Stephen's mahogany water stain in the first place, then size the work and coat in as we suggest. Hazel pine and satin walnut make excellent imitations of medium mahogany if carefully stained. (342).

Darkening Oak.

K. R. (Taplow) has made a sideboard with legs of American oak and doors and top of Japanese oak. He finished by rubbing the work with linseed oil and finds that, whilst the doors and top have taken a good brown shade, the legs have remained a light golden colour.

REPLY.—Obtain some raw turkey umber ground in oil. Pour a little of it into a dish and thin, if necessary, with turpentine and linseed oil to obtain the approximate shade required. Add an ounce of gold size to a pint of the oil stain. Stir the mixture well together and apply this to the lighter portions of the sideboard, rubbing it well into the grain of the wood. It will be better to obtain the required shade by two or three applications of the weak oil stain than to attempt to darken it by one application. Should turkey umber be too dark for your purpose, you can use any of the usual pigments that are ground in oil as a basis for the required shade. Allow the oil stain to dry for not less than three days before you give the job a second application. (337)

Water Spots on French Polish.

W. J. S. (Aberdeen) has recently finished some birch chairs with water stain and french polish and finds that drops of water mark them.

REPLY.—Water left standing on french polished work will always spot or bloom the polish even when the work has had a slight beeswax finish on top of the stain and the polish used to bind the stain. The only finish that will stand water is oil varnish or a cellulose lacquer. Where your chair is spotted you will have to glasspaper the surface and touch up the light patches with a spirit stain, re-polishing when dry. The spotting is not a polishing fault, but is due to the peculiar properties of the shellac in the polish. As you scraped the chairs first, it is quite possible that the water stain you used did not strike through the polish which was left in the pores of the wood. A spirit stain takes best on work which has previously been french polished or spirit varnished. (344)

Summer House.

J. T. B. (Worolsley) sends us a rough plan of a summer house he wishes to build, and asks for suggestions as to treatment.

REPLY.—The dimensions we show in the sketch are (on the back angle) 4 ft. 6 in. by 4 ft. 6 in., the canted projections being 2 ft. 0 in. wide. This gives clearance for an entrance about 3 ft. 6 in. The height to the plate from ground might be 7 ft. 0 in., whilst the roof might rise a further 2 ft. 6 in. or more according to the importance that it is desired to give to this in the building. Stuff 3 in. by 3 in. may be used for the uprights (A) and also for the plates (B) and bottom rails (C) throughout; the flooring would be of 1 in. stuff, preferably of grooved floor-board. Other stuff may be of 2 in. by 2 in. for the minor framings, with $\frac{1}{2}$ in. V-grooved and tongued board for the matched interior. For the ornamental inset framework 2 in. by 2 in. stuff halved together will do.

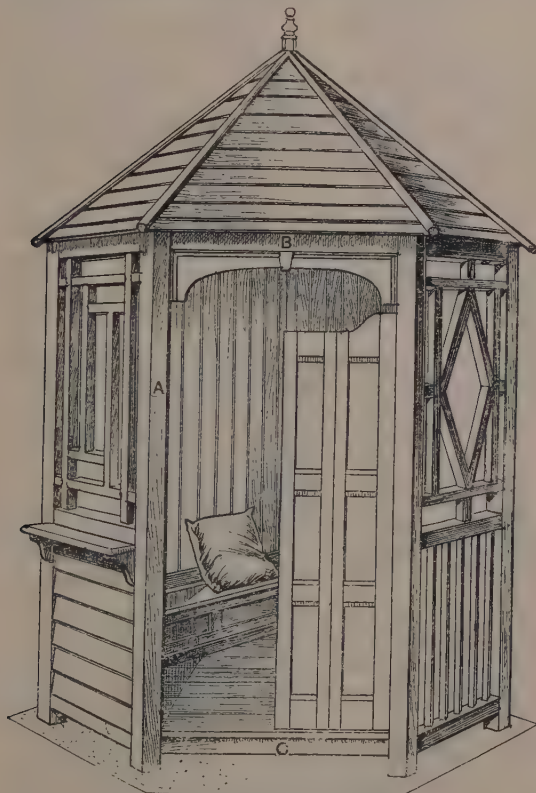
A couple of shelves might be added under the open framework for the placing of a flower box on each. The roof is finished to semi-hexagon. The construction of this roof may be of 3 in. by 2 in. or 2 in. by 2 in., and may be left exposed on the inside or boarded in on the angles, or a top of $\frac{1}{2}$ in. boarding may be built immediately above plate so that the roof is shut off. The outer roofing may consist of a good felting, to be afterwards tarred and sanded, or covered with weather-boarding to finish flush on the meeting angles. Lengths of staff bead would be nailed over the ends. Alternatively, there are the old fashioned wooden laplets or

tiles instead of the weather-boarding, or, as many prefer, the ordinary 12 in. or 16 in. asbestos slating, the red colour of which always imparts a smart effect. You may find some slight difficulty in fitting these slates at first, but if you start the bottom row (working half slates from the centre outwards, and centred above these the full sized tile upwards and outwards) you will be able to cut the end pieces slate for each row equally so that they finish sharp on the angle. It is easy to cut these slates if a very hard steel-point such as the tang of a file, or a small graving tool is used for the purpose. The tile should be placed on a perfectly flat surface and be cut against a stout piece of wood as straight edge, using considerable pressure; when the cut is fairly deep the tile should be shifted so that the edge of the flat surface comes under the cut, when the tile may be bent back till it snaps along the cut. The roof should overhang a full 4 ins.

The back angle sections of the summer house will be made up of framings of 2 in. by 2 in. stuff with diagonal ties in the usual manner, to be either boarded with $\frac{1}{2}$ inch boards outside and $\frac{1}{2}$ inch V-grooved boards inside, or on one side only according to the amount you wish to spend. The interior seats can be of 1 in. stuff supported on 2 in. by 2 in. legs; or, as is usually considered the better method, the space under the seats may be boxed in to form lockers which are always serviceable.

Should you desire to fit a door, you might perhaps care to consider a pair of doors, each made up of two separate framings, which in that case can be hinged either to open outwards to the full extent, or to fold back each door upon itself and thus close within the interior space left available (provided your seats do not exceed 12 in. in depth back to front). If you do not fit these doors (right hand half of sketch) you would have room for a fall down flap inside each side angle which should have its uses. We are not sure from your letter whether you wish the boarding to the side angles to be as at the left of sketch; if so this should be of weather-boarding and not matching, which if used should have the joints to run vertically. The alternative filling at the right would be a series of sticks of $1\frac{1}{2}$ in. by $1\frac{1}{2}$ in. stuff inserted with one angle directly outwards so that two wide faces are exposed to front, an arrangement which looks well if painted green against a backing of board painted white.

The shaped arch over the doorway would require a 9 in. board and may be cut in two pieces under one operation from $1\frac{1}{2}$ in. thickness stuff (or 1 in. to be fastened in centre with a key of 2 in. by 2 in. stuff). The door should not be of less thickness than $1\frac{1}{2}$ in. If to be painted, all joints should be put together with thick paint instead of glue, a coat of priming to be given with three coats of paint for the first year and one coat every year thereafter. (357)



SUGGESTED DESIGN FOR SUMMER HOUSE.

Polishing in a Damp Workshop.

J. A. V. T. (Lanarkshire) writes that owing to a damp workshop he has trouble when french polishing.

REPLY.—The only remedy is to heat your shop by artificial means or treat the work as trade polishers do when on outside work, such as shop fronts, in damp weather, i.e., obtain some large pieces of sheet iron, make them warm on a hot fire, then bring them near the work to drive the damp and bloom away. No good results can be obtained when polishing in a damp workroom. You could, of course, use a cellulose lacquer instead of french polish and the damp would have no effect on this. (343)

LIGHT 3-FT. BEDROOM SUITE

IV.—THE BEDSTEAD

WE give in Fig. 1 an illustration showing the appearance of the single (3 ft.) bedstead.

The following instructions apply equally to the 4 ft. 6 in. size. Dimensions can be taken from either Fig. 2 or 3, according to which is required. Where sizes are omitted in Fig. 2 they may be taken from Fig. 3.

HEAD AND FOOT.—In practice it will be found quicker to make both head and foot together, because all joints of a kind can be cut at the same time. For clearness, however, we will deal only with the foot. The head is made in exactly the same way, except that an extra rail is added at the bottom. First prepare the posts to finish $1\frac{1}{2}$ ins. square. Note that, although the top rails run right through over them, allowance must be made at the top for the tenons. Cramp them together and mark out the joints. That at the top should be chiselled across; the other is put in in pencil.

Separate the posts and square the top marks round on to all four sides. This enables a V groove to be cut, so providing a channel in which the saw can run when the shoulders are being cut. Complete the marking out of the joints with the mortise gauge, and cut them.

It is advisable to cramp together the rails in the same way when marking out. Whilst they are together, the long mortises or grooves to hold the panels can be marked. In the case of the

4 ft. 6 in. bed, the mortises for the slats also can be marked. Cross-channels are cut across the bottom rails to match those in the rest of the suite. An enlarged view of the joints is given in Fig. 4.

BEFORE ASSEMBLING, the moulding along the posts and top rail should be worked. There is no need to carry it across the ends of the rails, however, as this can be better done afterwards. When glueing, fix the bottom rail to the posts, insert the panel, and add the top rail. It is hardly likely that the whole will be out of square, but it should be tested to see that it is not in winding.

When the job has set the joints at the top can be levelled. The top corners, too, can be rounded slightly, and the moulding continued right round. Fig. 5 shows the moulding clearly. A plain fillet is added to the bottom rail in lieu of a moulding. The decorative effect in the panel is obtained by the use of a plain half-round moulding mitred round, with frets glued in the panels so formed.

The irons should be fixed about 14 ins. from the floor.

IF YOU WISH to learn French, there is nothing so useful as the weekly paper *La France* (8 pages, 2d.), from Newsagents, or from Evans Brothers, Ltd., Montague House, Russell Square, London, W.C.1.

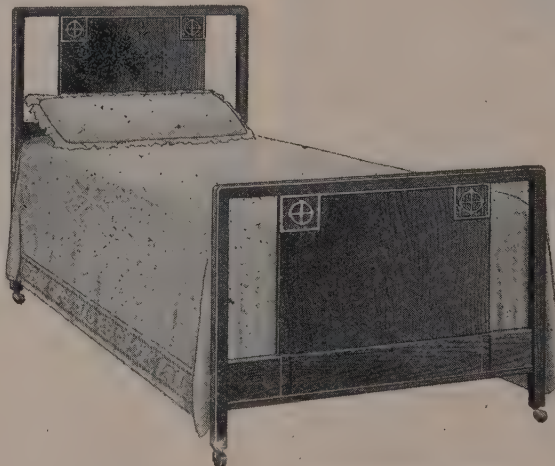


FIG. 1.—BEDSTEAD FOR OAK SUITE. SIZE, 3 FEET (OR ALTERNATIVELY 4 FT. 6 IN.).

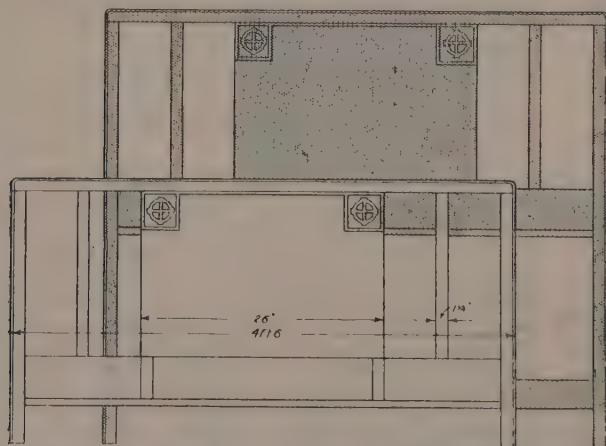


FIG. 2.—DIMENSIONS FOR 4 FT. 6 IN. BEDSTEAD.

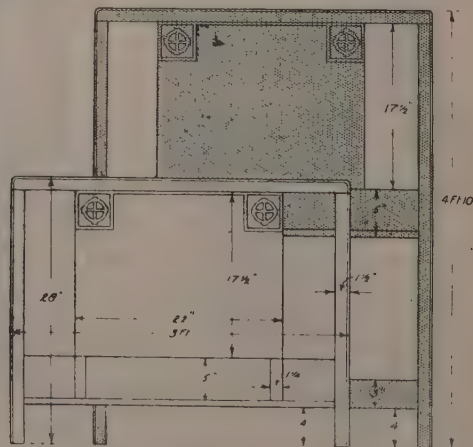


FIG. 3.—ELEVATION OF 3 FT. BEDSTEAD.

CUTTING LIST for 3 ft. bedstead :—

	Long. ft. ins.	Wide. ins.	Thick. ins.
2 posts	2 4	1½	1½
2 posts	4 10	1½	1½
2 rails	3 0½	1½	1½
2 rails	3 0	5½	7
1 rail	3 0	3½	7
2 panels	1 7	22½	½ ply.

CUTTING LIST for 4 ft. 6 in. bedstead :—

	Long. ft. ins.	Wide. ins.	Thick. ins.
2 posts	2 4	1½	1½
2 posts	4 10	1½	1½
2 rails	4 6½	1½	1½
2 rails	4 6	5½	7
1 rail	4 6	3½	7
2 panels	1 7	26½	½ ply.
4 slats	1 7	1½	½

(383)

NOTE.—The wardrobe of this suite appeared in July, the dressing table and glass in August, and the tallboy cabinet in September.

TEAK is a remarkably fine timber which, among other qualities, is the possessor of some oil or substance in its constitution which prevents the rusting or corrosion of iron when that metal is placed in conjunction with it, a virtue that distinguishes it from any other timber that is known. It has, therefore, on account of this qualification, been largely utilised in the backing for armour plates in the construction of war vessels. The wood is characterised by a uniform yellowish brown colour when fresh, such colour darkening with age and exposure. It is somewhat coarse and open in the grain, and has a surface that is greasy to the touch. Working well at most times, it has (in the process and when freshly sawn or tooled) an offensive odour, which, however, quickly passes away. It does not warp or twist in the slightest degree, and is almost imperishable, being used in India in the construction of all classes of railway carriages and wagons on account of its strength, durability and freedom from the attacks of the white ant. It is a fairly heavy wood, with an average of about 45 lb. to the cubic foot, and is of a rather fissile character, splitting easily. Its uses in this country are largely confined to shipbuilding and railway work, but there is a fair quantity used in a limited retail way by the building trades for high-class joinery and other work. It is, however, an exceedingly expensive wood, perhaps one of the highest priced hardwoods that is used, and is steadily advancing in value year by year, a condition which greatly mitigates against its more general use.

OLD WOODWORK OF THE OAK PERIOD.—One cause of the charm of Old English woodwork is its sturdy, simple honesty of construction. The pieces are pegged with wooden pins and are innocent of

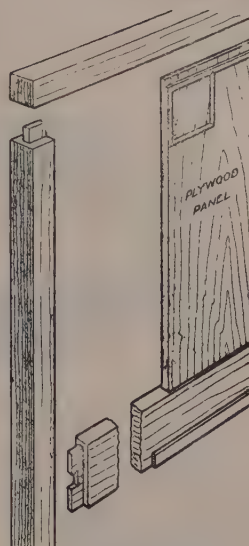


FIG. 4.—DOOR CONSTRUCTION.

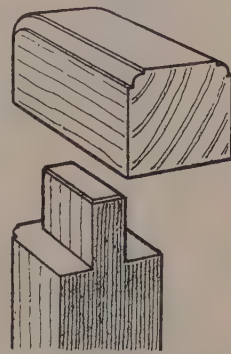


FIG. 5.—TOP JOINT.

screws. Had the old workmen used screws the rust of three centuries would long ere now have played havoc with many a fine old piece we still have intact. When examining woodwork of the sixteenth century one is impressed with its sound and substantial condition after daily usage, often of a rough character, for some hundreds of years. After making every allowance for the action of the "survival of the fittest," it seems certain that the simple methods of construction employed by our ancestors might be reverted to with advantage; that glue, French nails, and halving in are but poor substitutes, if durability be required, for the well-made mortise and tenon and the dowel.

(369)

CRABWOOD is a timber derived from British Guiana and fairly abundant in other Central American localities. Many attempts have been made to establish this wood as a mahogany, but with only partial success. It is claimed as a true mahogany, but the demand for the timber is only satisfactory when there is a dearth of other descriptions. It is procurable in large dimensions, but the wood is rather coarse in texture and has a liability to split in the process of seasoning. Generally received in lumber form, it has a limited consumption among the cabinet trades.

PICTURE FRAME MOULDINGS and other woodworker's sundries are freely illustrated in the new list issued at sixpence by Watkins Provider, Bridge Street, Newport, Mon. The list includes solid, embossed and compo mouldings, beadings, twists, frets, pateras, leg sets, transfers and other sundries. Note that the catalogue may be had for 6d. from the above address.

LIGHT WOODWORK

BEDROOM LOCKER OR UNDER-THE-BED WARDROBE

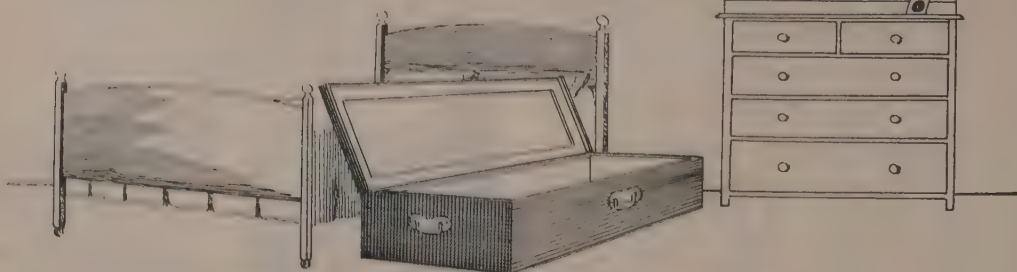


FIG. 1.—A USEFUL LOCKER TO FIT UNDER THE BED.

THE bedroom locker sketched at Fig. 1 is especially useful to those living in a small bungalow or flat, where space is small and cupboards few. It is simple and inexpensive to make as cheap plywood may be largely used in its construction, and if four castors are fitted under the bottom and it is made a suitable size it may be kept under the bed.

A locker of this kind may be made in any size from 4 ft. by 2 ft. up to 6 ft. by 3 ft. by 1 ft. high, limited, of course, by the size of the bed under which it is to stand. Generally the smaller size is the most useful, for if it is used for bedding and heavy linen a large locker is rather unmanageable.

A complete locker of simple make is shown at Figs. 1 and 2, but before it is put in hand the

size must be decided upon, the height being given special consideration, for its total height, including the cover and the castors, must be less than the height measured under the side irons of the bed. The ends should be of solid stuff about $\frac{3}{4}$ in. thick, but the sides and bottom may be of plywood nailed to them. The top edges of the sides should be strengthened with battens about 1 in. wide by $\frac{3}{4}$ in. thick, glued and nailed or screwed in place, and similar battens, $\frac{3}{4}$ in. square, are fixed between the sides and bottom, as at Fig. 3. The cover is made with a frame of 3 in. by $\frac{3}{4}$ in. stuff half-lapped and screwed together; the frame is covered with a sheet of plywood, and the front and end edges are finished with slips about $1\frac{1}{2}$ in. wide by $\frac{3}{4}$ in. thick, as at Figs. 3 and 4.

(Continued at foot of next page).

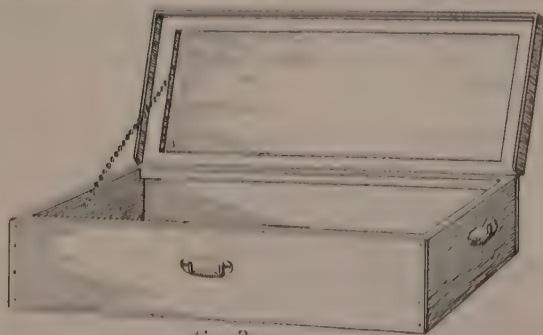


Fig. 2

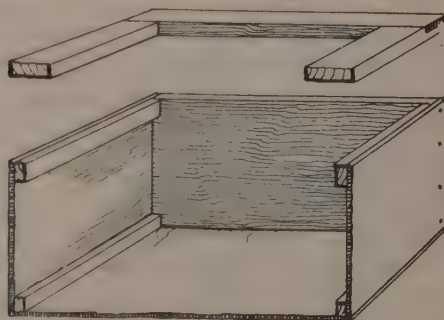


Fig. 3.

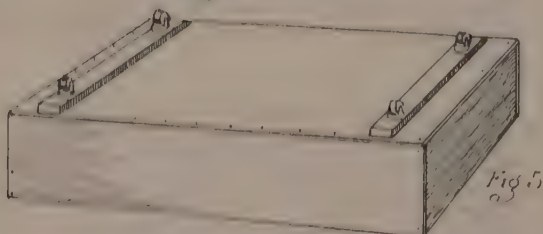


Fig. 5

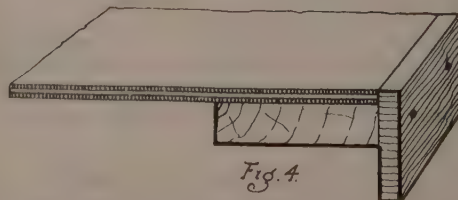


Fig. 4.

FIG. 2.—SKETCH; FIG. 3.—CONSTRUCTION; FIG. 4.—JOINT; FIG. 5.—CASTORS.

THE coffee and book table shown in the sketch (Fig. 1) is one of those small light pieces of furniture which the woodworker may put in hand with every confidence of its being put to a useful purpose in the modern home. Little time and material is needed for its construction, and it may be reproduced in almost any $\frac{1}{2}$ in. wood to match surrounding furniture. Standing 1 ft. 6 in. high, and measuring 2 ft. by 1 ft. 4 in. across the top, it is made with two ends which are framed with a book shelf and two top framing rails. The book shelf is divided lengthways with a thin partition; the top is of oval shape, and turned beading is used for ornamentation:

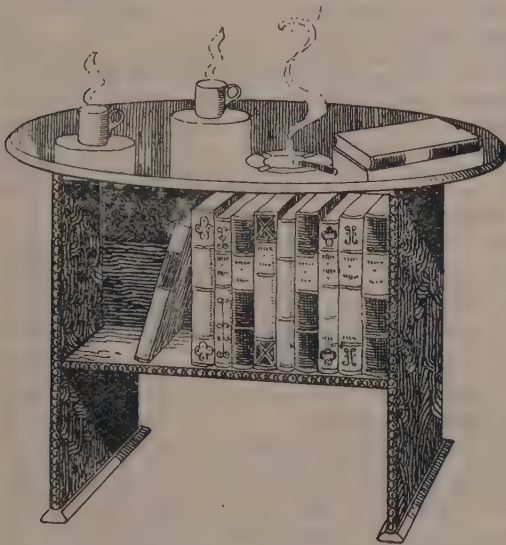
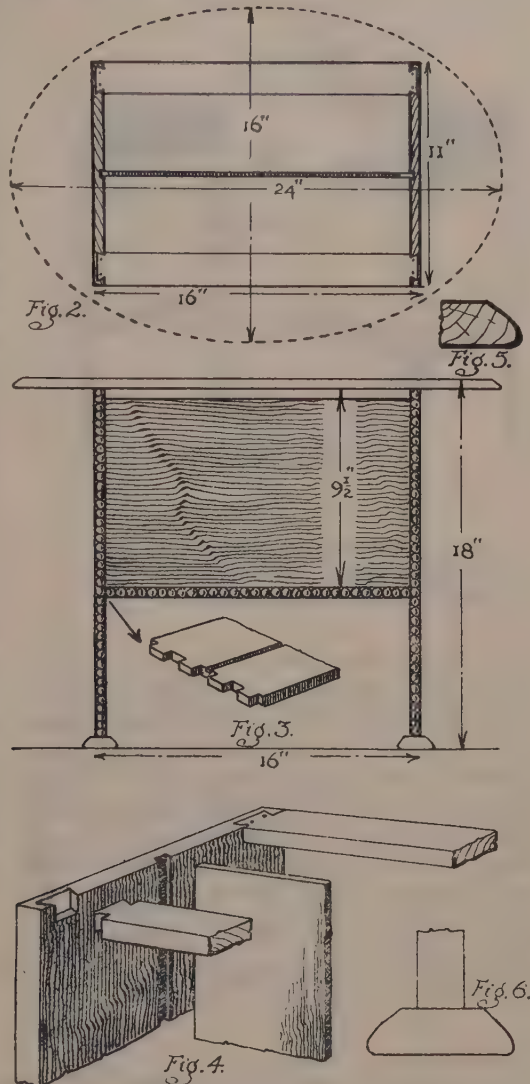


FIG. 1.—COFFEE AND BOOK TABLE WITH 24 IN. BY 16 IN. OVAL TOP. HEIGHT 18 IN.

THE ENDS are 1 ft. 5 in. long by 11 in. wide, and the bookshelf is 1 ft. $3\frac{1}{2}$ in. long by 11 in. wide, tenoned into the ends as shown at Fig. 3. The top framing rails are 1 ft. $3\frac{1}{2}$ in. long by $1\frac{1}{4}$ in. wide, dovetailed into the ends, and the division, which may be of plywood, is grooved $\frac{1}{8}$ in. into the ends and shelf as at Figs. 2 and 4.

THE TOP is 2 ft. long by 1 ft. 4 in. wide. Its edge should be shaped as at Fig. 5, and it is screwed through the framing rails. Small bearers, $12\frac{1}{2}$ in. long by $1\frac{1}{4}$ in. wide, of section shown at Fig. 6, are screwed under the ends, and the edges of the ends and book shelf could be finished with $\frac{3}{8}$ in. half-round turned beading. (380)

HOOP PINE from Australia promises to be a suitable wood for furniture. In weight, texture and appearance it resembles kauri pine. It is close grained and stains to either a mahogany or walnut finish. At the moment there does not appear to be a great quantity held by dealers. hoop pine should not be confused with huon pine; it is totally different in appearance and nature. (377)



FIGS. 2 TO 6.—DETAILS OF CONSTRUCTION.

Bedroom Locker

(Continued from page 308).

4. Fairly wide butt hinges should be used to hinge the cover, and a strap or light chain should be fitted between one end of the locker and the under side of the cover to hold it when open. Two battens about 3 in. wide by $\frac{1}{2}$ in. thick should be fixed across the bottom to carry the four castors, as at Fig. 5, and handles should be fitted to the front and ends.

On completion, the locker could be stained and varnished, or another method of finishing is with leatherette or fancy paper. The latter is especially suitable if very common wood has been used, the paper being obtained in large sheets to represent pigskin and other leathers at small cost. (381)

LIGHT CABINET WORK

TEA TABLE WITH CUP AND PLATE SHELF



FIG. 1.—LOUNGE TEA TABLE WITH CUP AND PLATE SHELF. SIZE, 27 IN. BY 16 IN. OVER TOP (OR AS REQUIRED). HEIGHT, 27 IN.

THE design shown here for a tea table with the convenient cup and plate shelf is capable of adaptation in various ways. A size over the top of 27 in. by 16 in., with a height of 27 in. is given, but these sizes may be varied as required. Tea tables are often as low as 2 feet—coffee tables sometimes lower—and a ready-made top may be used if desired. Then, for the purpose, sets of ready-made oak, birch, or mahogany legs can be used and cut to the length decided upon. These sets are procurable in various styles and thicknesses, several typical kinds being shown in Fig. 4. Tastes differ, too, in regard to

the stretcher rails, and in Fig. 8 four alternative arrangements are suggested. Legs $1\frac{1}{2}$ in. square will finish to $1\frac{1}{2}$ in. net.

CONSTRUCTION.—Following the design at Fig. 1, the legs will be cut to a length of about $26\frac{1}{2}$ in. The type of tapered leg shown, when purchased in a set, often tapers from about 2 in. from the top. This will have to be taken into consideration when preparing the solid ends, unless the worker prefers the plan of planing one face square for the top 6 in. The taper is so slight that this would not be noticed.

THE ENDS, 6 in. deep, are housed to the legs as at Fig. 5. The trenches in the legs should be cut so that the ends stand in about $\frac{1}{8}$ in. The ends themselves will bed on the shelf, to which they will afterwards be screwed from below.

THE BEARER RAILS should not exceed $\frac{1}{2}$ in. in thickness. At Fig. 5 they are shown dovetailed to the legs. For a table of larger size they could be cut to a width of 3 in. to permit of dovetailing also to the ends, but this is unnecessary in the present case.

THE SHELF is cut to finish flush with the outer faces of legs, the corners being cut to fit closely. It is held by screwing up into the ends, and a narrow flat moulding will afterwards be mitred, glued and panel-pinned on right round as indicated in Fig. 1.

THE TOP may be in one piece, or jointed, with the edge either left plain or simply moulded. The idea (as in Fig. 1) is to edge it with an applied moulding either similar to that around the shelf or $\frac{1}{2}$ in. wider. Our suggestion is a $\frac{1}{2}$ in. mould around the top, with one of $\frac{1}{4}$ in. from the shelf. The top is held by screwing through the bearer rails and thumb screwing through the ends.

THE STRETCHER RAILS may be fitted as in half pian (Fig. 7) with a small shelf in the middle. The shelf indicated may be of plywood, 10 in.

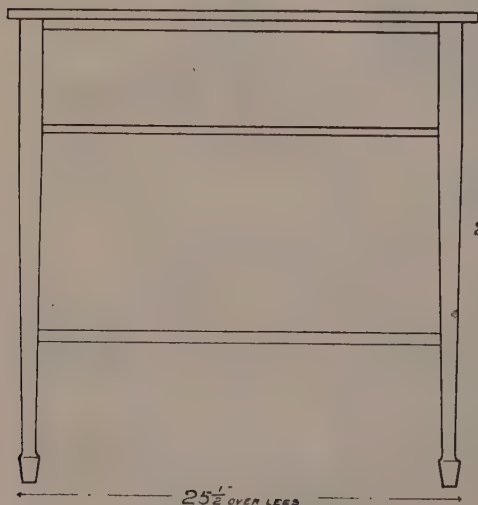


FIG. 2.—FRONT ELEVATION.

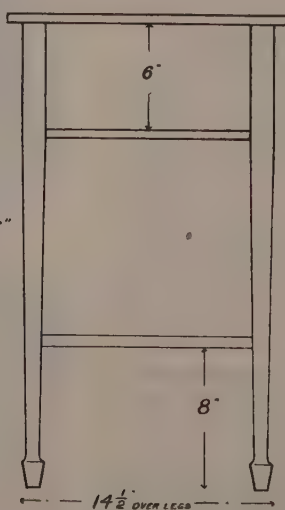


FIG. 3.—END VIEW.

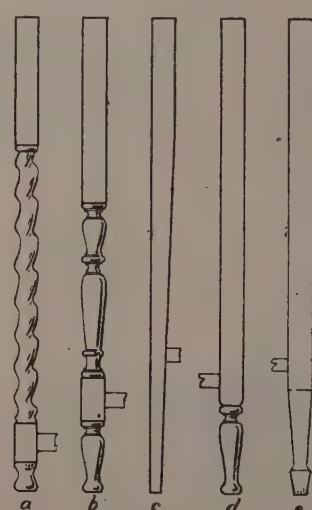


FIG. 4.—ALTERNATIVE LEGS.

by 7 in., supported by lengths of beading pinned to the cross stretchers (see A, Fig. 6). For these rails, which are tenoned in, a section of $\frac{3}{4}$ in. wide by $\frac{1}{2}$ in. thick is ample.

At Fig. 8a is indicated the same underframing, but without the shelf. At *b* we have the alternative of only one central rail tenoned to the cross rails. The diagonal arrangement at *c* looks neat on a light table. The rails are halved together at the crossing and notched to the legs. They are then additionally held by passing a screw-eye into each leg, immediately below the rail, and screwing from below. The arrangement at *d* is only recommended in cases where twist-turned legs of Jacobean type are used. The rails here would be of heavier section, say, 1 $\frac{1}{2}$ in. by $\frac{1}{2}$ in.

A word in conclusion may be said as to the alternative legs shown at Fig. 4. Most dealers in woodworking sundries stock all patterns (including that at Fig. 2), and if sets are bought the choice is purely a matter of taste. Only be careful not to choose a leg which will be too heavy for the dimensions otherwise.

If a square untapered leg (with, say, a head sunk on the outer corner) is used, the thickness may be 1 $\frac{1}{2}$ in.

A twist-turned leg is shown at Fig. 4 *a*, when the rail would necessarily come fairly close to the floor. A turned pattern like that at *b* has a light appearance. At *c* we have a leg tapered on the two inner faces only, but plain legs with all four sides tapered are also available. The patterns at *d* and *e* are frequently used for low cabinets, but are also suitable for the legs of a table of this type where a shelf and underframing are to be fitted. In each case a suggestion is offered as to the approximate height for the stretcher rails.

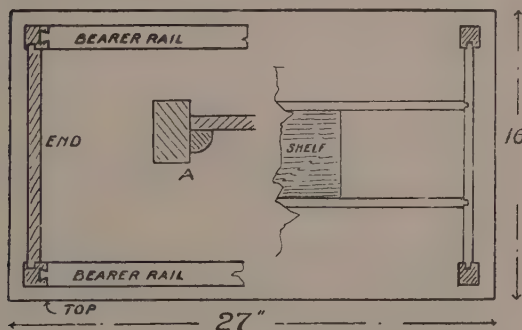


FIG. 6.—PLAN
AT TOP.

FIG. 7.—PLAN OF
UNDERFRAMING.

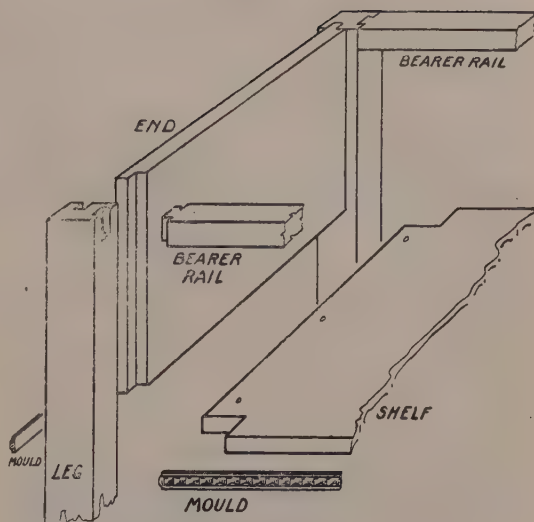


FIG. 5.—GENERAL SKETCH OF CONSTRUCTION.

THE CUTTING LIST (for Fig. 1) is as follows:—

	Long. ft.	Wide. ins.	Thick. ins.
4 legs	2 3	1 $\frac{1}{2}$	1 $\frac{1}{2}$
2 ends	1 2	6	$\frac{1}{2}$
2 bearer rails	2 3	1 $\frac{1}{2}$	$\frac{1}{2}$
1 shelf	2 2	15	$\frac{1}{2}$
2 underframing rails	1 2	$\frac{1}{2}$	$\frac{1}{2}$
2 ditto	2 1	$\frac{1}{2}$	$\frac{1}{2}$
1 small shelf	0 10	5	$\frac{1}{2}$
1 top	2 3	16	$\frac{1}{2}$
Moulding for top	7 6	$\frac{1}{2}$	$\frac{1}{2}$
Moulding for shelf	7 6	$\frac{1}{2}$	$\frac{1}{2}$

The thicknesses quoted are net.

(388)

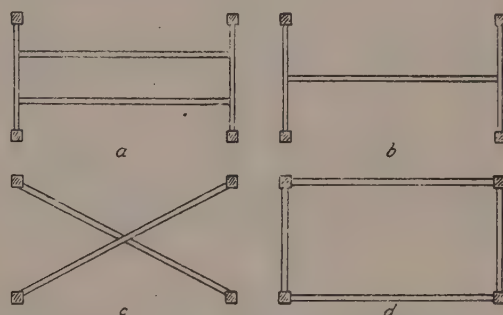


FIG. 8.—ALTERNATIVE ARRANGEMENTS FOR
UNDERFRAMING RAILS.

OBECHÉ WOOD—a timber comparatively new to the cabinet joinery and shop fitting trades—comes from Africa and usually arrives in this country in hewn logs. In weight the wood is considerably lighter than American whitewood, and can be obtained in boards of from 18 in. to 30 in. in width. It is particularly free from knots, but occasionally contains a few worm holes. In colour the wood is of a pale straw shade, and in

its openness of grain reminds one of an anæmic or bleached African baywood. It is soft and easy to plane and readily takes a walnut or a mahogany stain. In price it is about two-thirds that of prime American whitewood. We have seen a few logs of this timber converted into boards and the wood appeared to open up nice and clean. Owing to its open grain and its softness it will require a heavy filling-in. (376)

POLISHING NOTES—FUMING OAK

ONE of the simplest methods of finishing oak, provided it is of the Austrian, Russian, English or Japanese variety is by fumigation. This process consists of subjecting the oak to the fumes of ammonia in an airtight chamber and the liquid ammonia (there is also a lump or rock ammonia) should be full strength or .880, as it is termed in the trade. No great amount of skill is required and the following method is easily carried out.

Fumigation.

Be sure that the article to be fumed is free from greasy finger marks and is well dusted. Then open the drawers and cupboards to allow the vapour to have free access to the edges, because the fume will have no effect on any portions of the oak that is covered up. A large cupboard, a tin box, an ante-room, or the recess under a staircase, which can be made practically airtight, will answer as a fumigating chamber, the work being left in the fume for from twelve to forty-eight hours. Half a gallon of the ammonia should be equally distributed on four soup plates and one of these plates should be placed at each corner of, say, the cabinet or sideboard. It is good policy to place a thin strip of the same oak through the keyhole of the chamber door, and this may at any time be withdrawn to see the effect of the fume.

Fumigation gives a rich medium shade and brings up the figure of the quartered oak, but the colour is not so dark as the so-called Jacobean shade. When taking the work out of the fumigation chamber the fumes should be allowed to escape by opening the doors and windows in the immediate neighbourhood, and the article of furniture should then be examined in daylight. If it is found that certain parts of the oak have not been fumigated as dark as the other portions, all that is necessary will be to give the darker parts two coats of brush polish to protect them from the ammonia fumes and re-fume the job. On the other hand, if any parts of the oak appear too dark they may be bleached by the following solution. Mix 1 oz. oxalic acid crystals in a pint of warm water, adding a teaspoonful of sweet spirits of nitre. This solution should be painted on the dark patches with an old camel-hair or bristle brush. We say old brush because the solution will spoil it for any other purpose. When the general tone or shade is fairly even, the work may be given a coat of brush polish.

This brush coating will raise the grain and in due course the roughness will have to be removed by rubbing the work down with No. 1 glasspaper. A few rubbers of polish may now be given to the work and in due course it is wax finished. Alternatively, when the fumigation has been completed the work may be rubbed over with a rag which has been squeezed out in raw linseed oil. This will slightly darken the work and enhance the figure or clash. Follow on with two coats of polish and then use a beeswax and turpentine preparation. If it is thought desirable the work, after it is fumed and oiled, may be

filled in with a suitably coloured wood filler and in due course brought to a full finish having an egg-shell gloss by bodying up the surface with repeated coats of brush and rubber polish.

A very pale greenish cast may be imparted to the oak as follows. After the fumigation and oiling add to the polish you are going to use just the slightest trace of aniline green powder. As this is very strong and treacherous make it as follows. Place as much aniline green (ask for green soluble in spirits at 2/- per oz.) as will lie on a sixpence into $\frac{1}{4}$ pint methylated spirits, and shake well until it is dissolved; then add a few drops of this aniline stain to your polish. Just add sufficient green to kill the orange coloured polish, but be sure not to overdo it.

Other Methods.

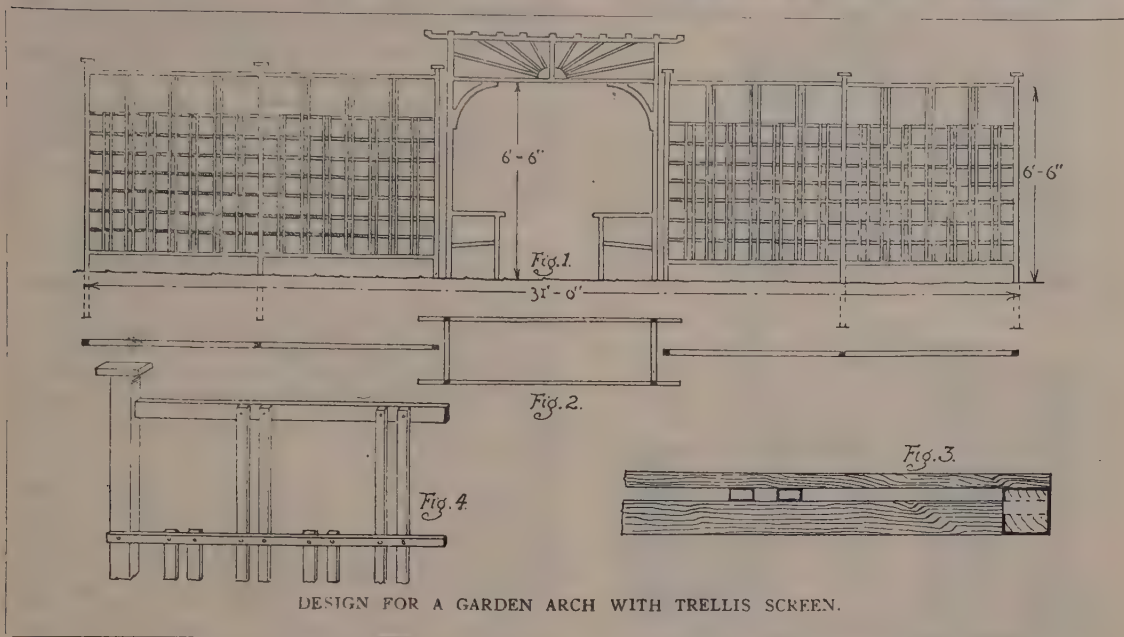
There are over forty varieties of the American oaks and many of these do not take the fumigating process well owing to a lack of tannic acid in their make up. These oaks are better stained. If, however, a piece of furniture is made of mixed varieties the following procedure gives good results. Mix together in $\frac{1}{4}$ pint of lukewarm water 1 oz. tannic acid and 1 oz. pyrogallol acid and stain the American oak with this solution, allowing it to dry naturally. Do not, however, use this stain on the Austrian oak. This treatment enriches the American oak with tannic acid, etc., and assists it in taking more kindly to fumigation.

Fumed oak gives a rich and pleasing shade and it does not fade to anything like the same extent as does a stained oak. In fact the real examples of Jacobean furniture were originally oiled immediately after they were made. Time and the natural fumigation have done the rest. Hence their lovely patina and shade. It is now generally accepted that the process known as artificial fumigation was first used by the eminent designer William Scott Morton, who started business in Edinburgh in 1867. Of course it had been noticed by observant workmen that stable fittings of oak and pitch pine became considerably darkened by the vapour which arose from the stable floor, but there is little doubt that Morton was the first to commercialise the idea of ammonia fumes.

OTHER SIMPLE METHODS of treating oak are:—(1) To stain the oak with a strong solution of household washing soda. Ease down with wet-dry glasspaper and, when dry, apply the linseed oil rag and later wax polish the work. (2) Take two pounds of unslaked lime and slake it in a quart of water. When cold, rub the mixture well into the grain of the wood. Allow it to stand until tacky or semi-dry then well rub it off. Finish with a coat of polish and a fadding rubber. If a wax finish is desired add a little zinc white to the wax when warm, and this will give the white-in-the-grain appearance. (3) Mix 2 ozs. powdered vandyke brown with ammonia to paste formation and then add one pint or more of liquid made from one pint of water in which has been dissolved $\frac{1}{4}$ oz. bichromate of potash.

(352)

DESIGN FOR GARDEN ARCH & SCREEN



THE elevation (Fig. 1), plan (Fig. 2), and details (Figs. 3 and 4) have been prepared at the request of a reader who wishes to erect the arch and seat described in the June number of *THE WOODWORKER*, but also desires a screen to be in harmony with the arch and to extend across a garden 31 ft. wide. Other readers who may desire to erect a similar screen will find these sketches useful.

For ease and convenience it is advisable to make the screen in two sections separate from the arch. Each section should be made with three uprights, 8 ft. 6 in. long by 2 in. square, framed with top and bottom rails 2 in. deep by 1½ in.

thick, which are tenoned into the uprights level at the face (see Fig. 3). The trellis rails are 1 in. wide by ½ in. thick. The long upright rails are fixed first, the top cross rails fixed next, then the short upright rails, and finally all the remaining cross rails, details being shown at Fig. 4.

THE UPRIGHTS should be sunk 1 ft. 6 in. into the ground and finials about 4 in. square by 1 in. thick should be fixed to the top ends of the uprights. The screen could be secured to the arch by fixing battens across the uprights of the latter, and screwing the inner uprights of the screen to the battens. (311)

SAXON HOMES.—In the description of Cedric the Thane's aula (*Ivanhoe*), Sir Walter Scott's antiquarian accuracy appears to be unimpeachable. For about the quarter of the length of the apartment the floor was raised by a step, and this space, which was called the dais, was occupied only by the principal members of the family and visitors of distinction. A table, covered with scarlet cloth was placed transversely across the platform, from the middle of which ran the longer and lower board, whereat the domestics and inferior persons fed. The plan resembled in form the letter T. Massive chairs and settles of carved oak were placed upon the dais, and over these seats and elevated tables was fastened a canopy of cloth, which served in some degree to protect the personages who occupied that distinguished station from the weather, and especially from the rain, which in some places found its way through the ill-constructed roof. The wall of this upper end of the hall, as far as the

dais extended, was covered with hangings, and upon the floor there was a carpet. In the centre of the upper table were placed two chairs more elevated than the rest, for the master and mistress of the family. (369)

HOBBIES, LTD., catalogue for 1931 (price 9d.), which we have just received, shows the usual fine range of treadle and other fretsaws, lathes and tools manufactured at the company's works at Dereham. We note a combined treadle sawing and drilling machine at £3, whilst others (power or electrically driven) are available up to £17. To those who have noted the revival of the fret as a feature in furniture decoration the Hobbies treadle saws should be of special interest. The list otherwise shows many amateur's tools, and there are well over a hundred pages of fretwork designs. Price 1s. post free from Hobbies, Ltd., Dereham, Norfolk.

CABINET FOR MODERN KITCHEN

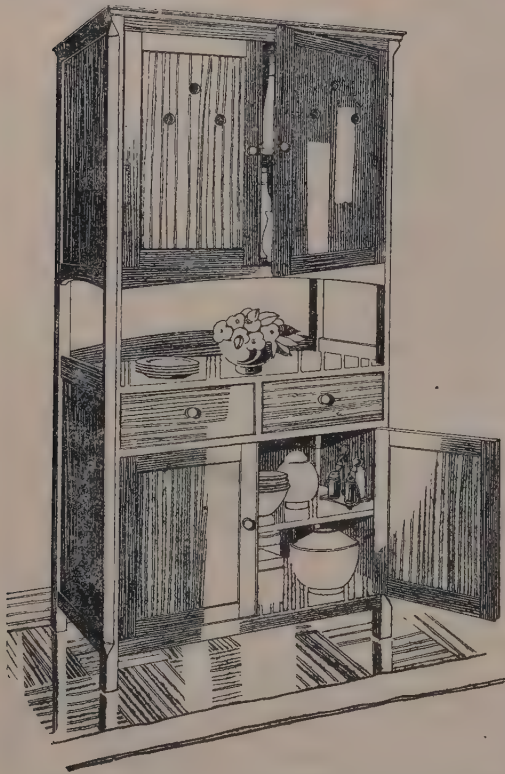


FIG. 1.—COMPACT CABINET FOR THE MODERN KITCHEN. WIDTH, 3 FT.; HEIGHT, 6 FT. 6 IN.

AN article that will serve both as a sideboard and food cupboard combined has long been a necessity in the kitchen, and it was with this idea in mind that the cabinet illustrated here was made. Ample accommodation for various foodstuffs and kitchen utensils is provided for in the lower cupboard. Above are two drawers, the left of which might be divided for cutlery, whilst the right hand drawer might be left for table linen. The top cupboard is intended for perishable foodstuffs and is consequently ventilated. Directly under this cupboard a roomy space is available for use as an ordinary sideboard top.

The article is very compact, and would well repay the time and labour involved in its construction. Oak or mahogany for making up would look equally attractive, whilst for a tiled kitchenette a white or cream enamel upon birch or beech would be an ideal finish.

CONSTRUCTION.—The posts (A) should be of mild straight-grained stuff, finished $1\frac{1}{2}$ in. square to their entire length. Gauge and cut mortises in their respective positions for the rails (H to O) as shown in Figs. 3, 4 and 7. The front posts are bevelled, this giving a neater appearance in addition to reducing the weight. A section appears in Fig. 8. The operation of bevelling the posts is quite simple if the following procedure

is adopted. Gauge the outside lines of the bevel and make a start from the top about a foot down with a fine rip saw. Finish off to the top angle with a chisel. Cut both angles with the latter tool, and then plane up with a fairly wide bull-nose plane to the gauge lines. Care should be taken when working these bevels (in view of the mortises already cut) not to obtain an excessive width.

Work grooves on the inside end faces of the posts for the end panels (Y and Z) to a depth of $\frac{3}{8}$ in. and width of $\frac{1}{4}$ in. Stop them between rails (I and K) and (L and O) respectively as shown in Figs. 3 and 4. Rebates $\frac{1}{4}$ in. wide and $\frac{3}{8}$ in. deep are required on the back edges of the posts to take the carcass backs and must be stopped as shown in Figs. 2 and 3. Mortises must be cut as in Figs. 3 and 6 for the tenons of the drawer rail (P), taking care not to go through to the bevel already worked. The posts must also be treated as shown in Fig. 5 to receive the top (U).

Collect the rails, and gauge and cut single shouldered tenons to a length of 1 in. on each. Rebates to a width and depth of $\frac{3}{8}$ in. must be worked on rails (J and K) and (N and O) for the carcass bottoms. Trench out the end rails (L) and back rail (M) to a width of $1\frac{1}{8}$ in. and depth of $\frac{1}{4}$ in. to receive the top. Mould a rounded section on the top edges of rails (L and M) after the latter has been fretcut to the required shape. Fretcut the rails (J and K) and clean up with a spokeshave or plane. Cut twin mortises, $\frac{3}{8}$ in. deep, vertically in line in the top and drawer rail to receive the tenons of the division clamp (T, Fig. 3).

THE TOP should be selected prime timber, and must be grooved out centrally across grain on the under side to receive the division (T). Similarly groove out the mid runner (R) to a depth of $\frac{1}{4}$ in. and width of $1\frac{1}{8}$ also for the division (T). Tenons to a length of $\frac{1}{4}$ in. are allowed on the drawer rail to enter the mortises already cut in the posts. Treat as shown in Fig. 6 by notching around the post after working a groove on the inside back edge to receive the dustboards.

THE RUNNERS are grooved on their edges to receive the dustboards. On the front end edges cut $\frac{3}{8}$ in. stub tenons to enter the groove worked in drawer rail. Fig. 6 illustrates this. Construct the skeleton carcass in the following manner. Cramp and glue up the end rails to the posts, fitting the tenons, well glued, of the rails into their respective mortises. The end panels (Y and Z) must be inserted in the grooves prepared for them at the same time of cramping up.

When these end frames are dry cramp and glue them to the rails (H, J, M, N and P), inserting the top into the grooves worked in rails (L and M), and the tenons of the division clamp (T) into the mortises already cut in the top and drawer rail. It might be as well to mention that the top must not be glued in its grooves, but screwed from the back of the rail (M) and left loose at the front and ends to shrink if necessary.

We might now fit the remaining essentials to the carcass. Fit the tenons of the runners into

the drawer rail and screw to the back posts. Similarly fit the tenon of the runner (R) into the drawer rail and secure at the back by screwing up into the division. The latter in turn is screwed into the top behind the drawer backs.

Guides will be required next to the end panels (Z) as shown in Fig. 6. The dustboards can be slipped in from the back and left dry in their grooves. Fit the carcass bottoms (V) into the rebates worked in the rails J, K, N and O and well screw down, notching around the posts.

The bottoms just rest on the rails at the back and are screwed down.

THE ROOF is pinned down as shown in Fig. 4. Select or work a cornice moulding as near to the section at Fig. 8 as possible, taking care to bring these mouldings up to a neat mitre at the corners, and to cover the joint of the rails and roof.

Glue and screw the shelf bearers to the end panels (Y and Z). Work a half round section on the front edges of the shelves and notch these around the posts at the back. Fit and screw the carcass backs into their rebates, not forgetting with the bottom carcass back to screw through into the drawer division and runner to give added support to the latter. All should be completed now, with the exception of making up the doors and drawers.

DOOR.—Select mild stuff for the rails and stiles. Fig. 9 gives details of the tenons $1\frac{1}{4}$ in. long to be cut on the rails to fit mortises worked in the stiles. Groove the inside edges of the rails and stiles to a depth of $\frac{3}{8}$ in. and width of $\frac{1}{2}$ in. for the door panels. The use of a parting bead in order to break the joint is employed on the meeting stiles.

The top panels are bored for ventilation, this consisting of three $1\frac{1}{4}$ in. diameter holes being bored right through in each panel. To render the cupboard fly proof, a piece of metal gauze might be placed behind each hole and pinned on to the panel. Incidentally, when cramping up the rails to the stiles insert the panels in their grooves and leave dry.

An allowance of $\frac{1}{8}$ in. is made on the width of stiles and rails for fitting to carcass. Hang each door upon a pair of $2\frac{1}{2}$ in. hinges and fix a pair of bolts, one top and bottom, on each left hand door. Behind the latter at the bottom fit a small dowel stop. A lock and key may be preferred on the right hand doors, but a bullet catch fitted on to the bottom edge of each door near the centre would serve.

DRAWER CONSTRUCTION.—Dry timber is essential for the drawer fronts and sides, straight stuff to avoid winding and shrinking in subsequent use.

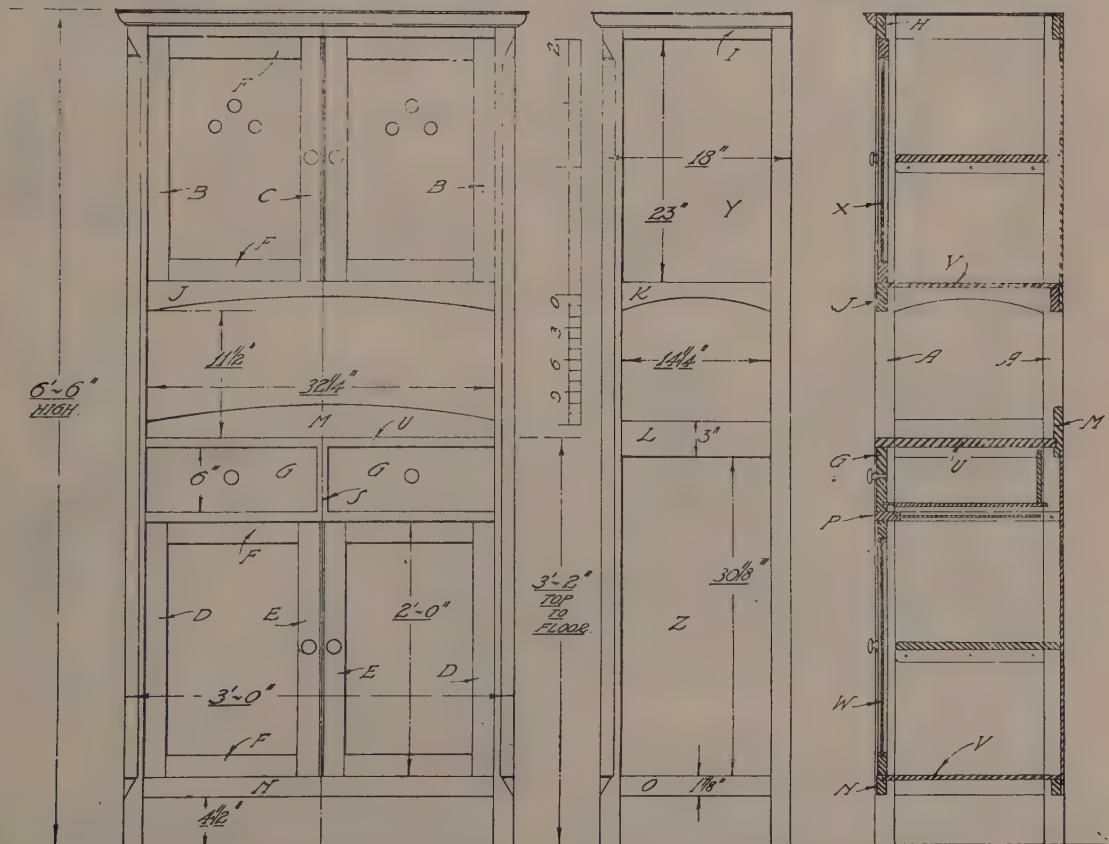
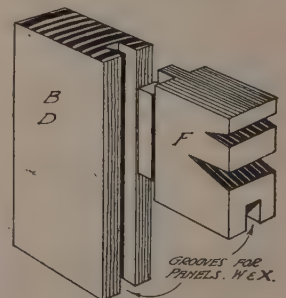
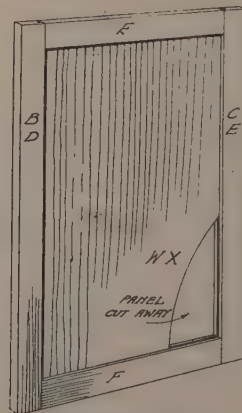
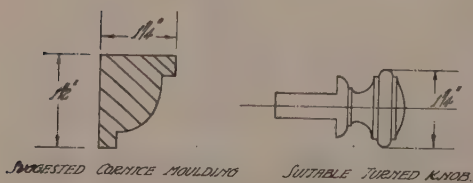
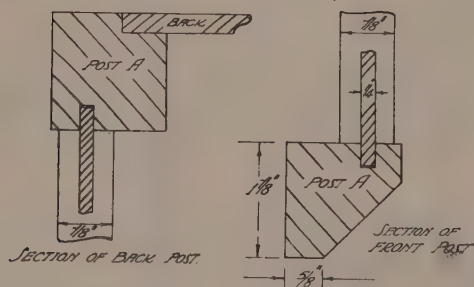
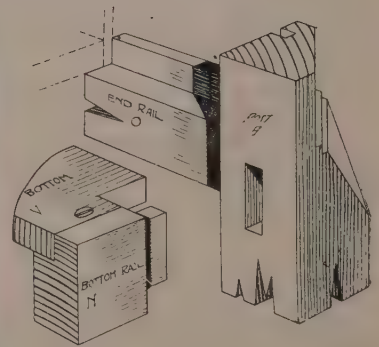
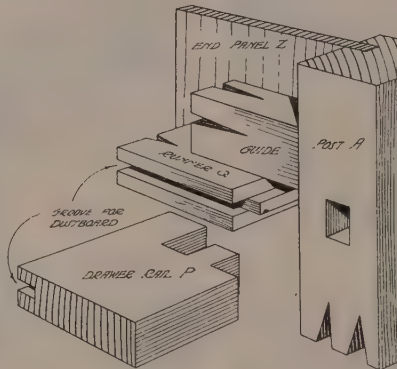
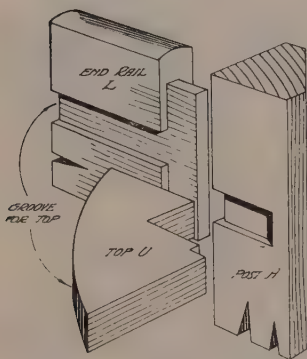
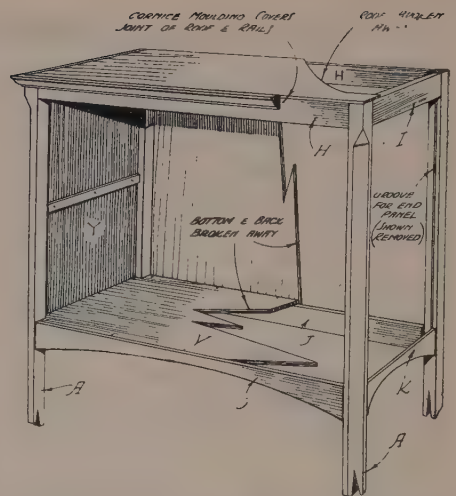
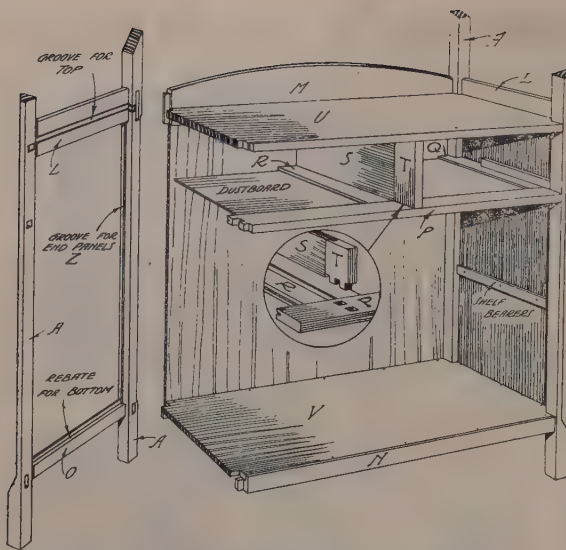


FIG. 2.—DIMENSIONED ELEVATION AND END VIEW; ALSO END SECTION.



Lap dovetail the sides to the fronts, and through dovetail with the backs. Grooves $\frac{1}{2}$ in. deep must be worked for the drawer bottoms in the fronts. The bottoms must be chamfered away on three bottom edges to fit slips glued and pinned to the sides, and the former should be slipped in from the back and slot screwed up into the drawer backs.

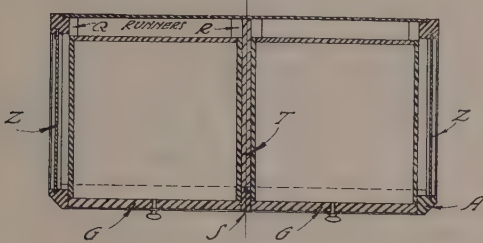


FIG. 10.—SECTIONAL PLAN AT DRAWERS.

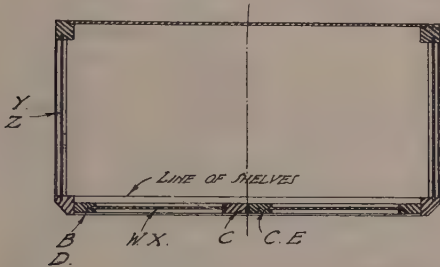


FIG. 11.—SECTIONAL PLAN OF CUPBOARD.

A suggestion worth employing is to divide and line the left hand drawer for cutlery. If this idea is adopted, the use of flush slips is advocated for the drawer sides, whilst the divisions, $\frac{1}{2}$ in. thick, could be simply pinned together. Line with a good baize or billiard cloth and fit a till lock for safety reasons to the drawer front. Finally clean and paper down the whole job ready for polishing.

As a guide to timbers, oak or mahogany might be used for items A, B, C, D, E, F, G, H to P, T and U. Use oak or mahogany-faced plywood for items V, W, X, Y and Z. Deal or whitewood would suffice for Q, R, S and guides. The back panels might be of oak-faced plywood one side, the roof being of the same material. Use oak or

HOME-MADE JACOBAN STAIN.—A good home-made stain for medium to light Jacobean colour is made by placing asphaltum in turpentine substitute, or in pure turpentine. Much of the asphaltum will dissolve if the jar is placed in a hot water bath. It should stand at least forty-eight hours before ready for use, and must be frequently stirred and kept corked. Strain off the stain or home-made dye, adding a tablespoonful of gold size to a pint of the stain. Shake well and apply to the oak as a wood dye. This stain may be lightened by the addition of turpentine or turpentine substitute, or it may be darkened by adding drop black ground in turpentine,

mahogany for the shelves and bearers, drawer sides, backs and bottoms, knobs and cornice mouldings.

CUTTING LIST:—

		Long.	Wide.	Thick.
		ft. ins.	ins.	ins.
A	4 posts	6 5 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$
B	2 door stiles	1 11 $\frac{1}{2}$	2 $\frac{1}{2}$	1 $\frac{1}{2}$
C	2 door stiles	1 11 $\frac{1}{2}$	2 $\frac{1}{2}$	1 $\frac{1}{2}$
D	2 door stiles	2 0 $\frac{1}{2}$	2 $\frac{1}{2}$	1 $\frac{1}{2}$
E	2 door stiles	2 0 $\frac{1}{2}$	2 $\frac{1}{2}$	1 $\frac{1}{2}$
F	8 door rails	1 1 $\frac{1}{2}$	2 $\frac{1}{2}$	1 $\frac{1}{2}$
G	2 drawer fronts	1 3 $\frac{1}{2}$	6 $\frac{1}{2}$	1 $\frac{1}{2}$
H	2 top rails	2 10 $\frac{1}{2}$	2 $\frac{1}{2}$	1 $\frac{1}{2}$
I	2 top rails	1 4 $\frac{1}{2}$	2 $\frac{1}{2}$	1 $\frac{1}{2}$
J	2 mid rails	2 10 $\frac{1}{2}$	3	1 $\frac{1}{2}$
K	2 mid rails	1 4 $\frac{1}{2}$	3	1 $\frac{1}{2}$
L	2 end rails	1 4 $\frac{1}{2}$	3	1 $\frac{1}{2}$
M	1 back rail	2 10 $\frac{1}{2}$	4 $\frac{1}{2}$	1 $\frac{1}{2}$
N	2 bottom rails	2 10 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$
O	2 bottom rails	1 4 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$
P	1 drawer rail	2 10 $\frac{1}{2}$	2 $\frac{1}{2}$	1 $\frac{1}{2}$
Q	2 drawer runners	1 3 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$
R	1 drawer runner	1 3 $\frac{1}{2}$	3	1 $\frac{1}{2}$
S	1 division	1 3 $\frac{1}{2}$	6 $\frac{1}{2}$	1 $\frac{1}{2}$
T	1 clamp	0 6 $\frac{1}{2}$	2 $\frac{1}{2}$	1 $\frac{1}{2}$
U	1 top	2 10 $\frac{1}{2}$	17 $\frac{1}{2}$	1 $\frac{1}{2}$
V	2 bottoms	2 10 $\frac{1}{2}$	17	1 $\frac{1}{2}$
W	2 door panels	1 8 $\frac{1}{2}$	12 $\frac{1}{2}$	1 $\frac{1}{2}$
X	2 door panels	1 7 $\frac{1}{2}$	12 $\frac{1}{2}$	1 $\frac{1}{2}$
Y	2 end panels	1 11 $\frac{1}{2}$	15	1 $\frac{1}{2}$
Z	2 end panels	2 6 $\frac{1}{2}$	15	1 $\frac{1}{2}$

Also required:—

6 knobs	0 2 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$
2 cornice mouldings	1 7 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$
1 cornice moulding	3 3	1 $\frac{1}{2}$	1 $\frac{1}{2}$
2 shelves	2 10 $\frac{1}{2}$	15 $\frac{1}{2}$	1 $\frac{1}{2}$
4 bearers	1 2 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$
4 drawer sides	1 3	6 $\frac{1}{2}$	1 $\frac{1}{2}$
2 drawer backs	1 3 $\frac{1}{2}$	5 $\frac{1}{2}$	1 $\frac{1}{2}$
2 drawer bottoms	1 2 $\frac{1}{2}$	15 $\frac{1}{2}$	1 $\frac{1}{2}$
1 back panel	2 4 $\frac{1}{2}$	33 $\frac{1}{2}$	1 $\frac{1}{2}$
1 back panel	2 8 $\frac{1}{2}$	33 $\frac{1}{2}$	1 $\frac{1}{2}$
1 roof	3 0	18	1 $\frac{1}{2}$
2 dustboards	1 2 $\frac{1}{2}$	14	1 $\frac{1}{2}$
2 guides	1 0	1 $\frac{1}{2}$	1 $\frac{1}{2}$

NOTE.—All sizes are strictly nett, and allowance must be made for cutting and cleaning up.

HARDWARE.—8 2 $\frac{1}{2}$ in. brass hinges, 2 pairs of flush bolts, 2 cupboard locks 1 in. to pin, to left hand, 1 till lock $\frac{1}{2}$ in. to pin. Brass thread escutcheon. (384)

or brunswick black thinned with turpentine. Either of the two last mentioned liquids may be obtained from almost any painter and decorator. After using this home-made stain, coat in the work with brush polish, rub down with glass-paper and finish by wax or dull gloss polish.

Please remember that, during the autumn months, there is invariably an increased demand for copies of THE WOODWORKER and that the only way to make certain of regular delivery is to place an order with the local newsagent. See that your November number is definitely on order.

HAND SAWS

THEIR CHARACTERISTICS, ADAPTATION AND VARIETY

PROBABLY the hand saw can be correctly designated the most important hand tool in the wood-working world. In joinery factories and for work in the home it is equally indispensable. Bereft of its use, there could be little made in the shape of finished wood-work.

The variety of hand saws in general use is considerable, comprising (1) the rip saw, (2) the cross-cut, (3) the panel, (4) the tenon, (5) the dove-tail, (6) the port, and (7) the fret-saw.

Hand Rip Saws.

THE HAND RIP SAW.—The advent of machinery has superseded this saw to a great extent in wood-working establishments, but for home work it is still a most serviceable tool. The saw has (or should have) fewer teeth to the inch than any other type of hand saw (excepting those used for cutting ice). The most suitable number is $3\frac{1}{2}$ points to the inch for soft wood and 5 points to the inch for hard wood. For general work the cutting angle of the teeth should not exceed 90 degrees. The saw is frequently used for tenoning purposes when machinery is not available, but the operator will realise that the angle of 90 degrees on the face of the teeth cannot be exceeded for this class of work.

Rip saw teeth should be invariably sharpened dead square; *i.e.*, all teeth can be filed from the one side of the saw grips. No more set than is actually necessary should be applied: $\frac{1}{40}$ th inch for hard wood on each side or $\frac{1}{20}$ th inch on each side is a fair and adequate amount of set for soft wood.

Cross Cut Saws.

THE HAND CROSS-CUT SAW.—There are several types of cross-cut saws in general use. These are made from 20 in. to 30 in. long. There are two correct forms of teeth, *viz.*, the lance tooth and the ordinary bevel, which should have a pitch of four points to the inch for general work and four to six points to the inch for hard wood.

Hand saw teeth are generally sharpened by a tapered triangular file with three flat sides, but the action of a special cone shaped file is better adapted for sharpening lance toothed saws. The angles of the ordinary triangular file are invariably 60 degrees; consequently the necessary bevels cannot be given to lance teeth unless exclusive filing of one side of the teeth is resorted to. For saws which have to contend with varied work the triangular file is well adapted. With the three-cornered file the face of one tooth and the heel of the next can be sharpened at the same time, but with files having more acute angles this cannot consistently be done. During the process of sharpening the saw must be fixed in a vice, teeth upwards, and the file should be held in a horizontal position at an angle of 30 degrees or so across the saw with the point of the saw file towards the saw handle.

The tooth edge of all saws should be thoroughly

straight, and periodically topped (or "jointed") so that the teeth (while in action) will perform an equal amount of work. Hand saw can be successfully set by means of the pene hammer and bevel block, and Morrill's patent adjustable saw set is specially good for this purpose. The amount of set can be regulated by means of a screw on this appliance.

Caution should be observed that excessive set is not given: if teeth are pressed too hard near the base they will break. A small gauge should be used to ensure the correct amount of set before setting all the teeth. Care should be taken that the teeth do not develop deformity during the process of sharpening.

A good method to secure uniformity of set is to place the saw on a flat surface and run over the teeth with a flat file. This is also called side-filing, and it enhances the cutting capacity of the teeth. It is important that no more pressure and no greater number of strokes to one couple of teeth than to others, except in the case of saws which have been damaged by improper treatment or by contact with iron or other hard substance. A flat file fixed to a hard-wood block at right angles with the blade is generally used for topping (or "jointing").

When sharpening "lance" teeth the file should be held at an angle of 60 degrees downwards and kept at right angles with the saw blade. One side only of each tooth can be treated at once, consequently the trimming of a saw of this kind involves twice the labour and double the number of strokes that other hand saws require. The setting can be effected by similar methods to those used in the trimming of other hand saws, but it is better to bend the teeth by hand and not by hammer.

Panel Saws.

THE PANEL SAW.—This saw is also more or less a cross-cut. Its usual length is 20 ins., and it is generally two or three gauges thinner than the ordinary rip or cross-cut saw. Its teeth should have a pitch of eight or ten to the inch, and these can be either of the "lance" type or of the ordinary cross-cut type. Similar treatment should be applied to it as regards sharpening and setting.

Tenon and Dovetail Saws.

THE TENON SAW.—This is a very important and useful tool, especially for home work. It can be successfully utilised and applied to all the sawing work required in the construction of furniture, etc., on a small scale at home. Its thickness is much less than even the panel saw, and if the blade were not supported and tensioned by the back its necessary rigidity could not exist or be maintained owing to its extreme thinness. The length of this saw varies from 12 ins. to 16 ins. Its tooth space should be $\frac{1}{10}$ th or $\frac{1}{12}$ th of an inch, which means 10 or 12 points to the inch.

The correct sharpening of this saw and the setting of the teeth are the most difficult and delicate jobs which any man can attempt, and precision and keen eye-sight are essential if the teeth are to be trimmed in a correct manner. Fine files are required for sharpening these saws, and the setting should always be done by pene hammers and bevel-steel block.

THE DOVE-TAIL SAW is almost a replica of the tenon saw, except that it is not so long or so wide. Its length is only from 6 ins. to 11 ins. and its width 3 to 3½ inches. It also carries more points to the inch than the tenon, namely 14 to 16.

When the tooth edges of the tenon or dove-tail saw get out of truth by rough usage, or working the tool without adequate set, the remedy is to detach the steel or brass back from the blade and to hammer lightly on the anvil all along the back part of the blade for two or three inches inwards. When this process is skilfully applied its original rigidity will be restored.

Compass and Fret Saws.

THE PORT OR COMPASS SAW.—This saw is different from all other types of hand-saws inasmuch that the tooth edge is much thicker than any other; and, as the back edge is thinner than the tooth edge, no set is necessary. It is a tapered tool, *i.e.*, being only ¼ in. at the point and from 1½ ins. to 2 ins. at the base or handle end. Its length varies from 12 in. to 16 ins. As its action is frequently subjected to both cross-cutting and ripping work the teeth should have a bevel of about 20 degrees on the face. The purpose of this tool is to saw timber into irregular form and to strike ornamental designs in wood in circular and curvature form. It can

traverse circles from 2 inches to many feet in diameter.

THE FRET SAW.—This is the premier saw for artistic home work. Thousands of homes are adorned by its beautiful creations. Since the advent of three-ply wood the use of and productions from this saw have increased enormously, and it can claim to have produced some of the most elaborate and ornamental specimens of fret cutting and inlaying known.

The fret-saw is so fine and narrow and the price so cheap that the sharpening of these saws is unnecessary. Indeed the teeth are so minute and the blade so narrow that sharpening is almost impossible. Excluding factory machines, which are propelled by motive power, it can be operated by hand or treadle in the home, and some of the most exquisite and striking models have been produced by this saw in this way.

There are three kinds of hand saws which need tensile strain, *i.e.*, the saw being fixed at each end in a frame and the tension applied by screw. These three are the bow, the fret and the hack saw. The most delicate and narrow blades can be worked in this manner without liability of injuring the tool.

Thin saws require less power to operate than thick ones, and are also more economical. Some saws of 24 B.W.G. are, on account of their superior temper and quality of steel, as rigid as others of 20 or 21 gauge. The surfaces of all saws should be ground perfectly smooth, as this facilitates working and should be kept bright and preserved as far as possible from moist atmosphere or rain. It is expedient to rub saws occasionally with sperm or other machine oil to maintain their brightness. (333)

NEXT MONTH'S WOODWORKER

Among designs in preparation for the November and December numbers are the compact sideboard illustrated here, a grandmother clock, a lounge arm chair, a gramophone cabinet, a medicine cabinet, a bureau bookcase etc. Outdoor woodwork will include a poultry house, and we have in readiness a number of articles on light carpentry and light cabinet-work subjects. In response to several requests we add this month a design for a bedstead *en suite* with the wardrobe, dressing chest and tallboy cabinet which appeared in July, August and September. Readers will also note the announcement of a special Prize Competition which appears on an advertisement page.

NOTE.—To any of your friends likely to be interested, we shall be pleased to post a specimen copy of THE WOODWORKER.



DESIGN FOR A 3 FT. 6 IN. OR 4 FT. SIDEBOARD
(November).

FOLDING GARDEN CHAIR

A FOLDING chair of the kind sketched at Fig. 1 may be easily and cheaply made, and is very convenient for use in the garden. It is constructed with three frames. The two bottom ones fit one within the other, and are hinged together to fold flat. The seat is formed with a piece of canvas, and, as the back is also hinged, it will be seen that the chair may be folded up quite small for carrying or packing away.

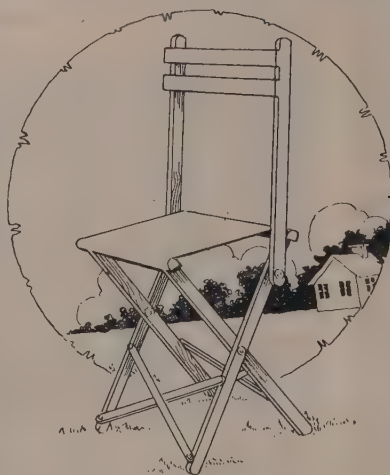
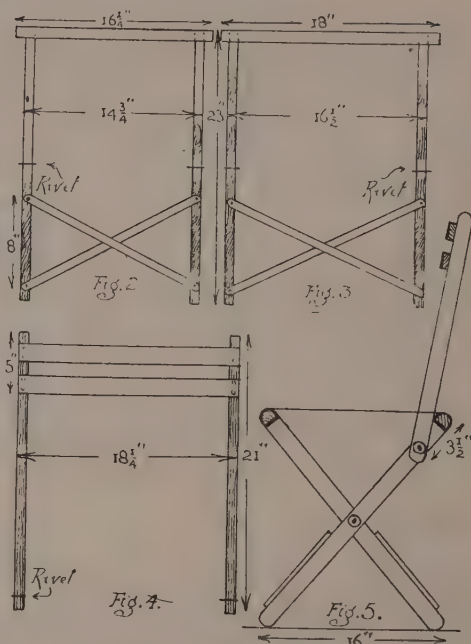


FIG. 1.—LIGHT FOLDING GARDEN CHAIR.

THE TWO BOTTOM FRAMES are made as shown at Figs. 2 and 3, each having two side rails tenoned into a top rail. The side rails in each case are 23 in. long by $1\frac{1}{2}$ in. wide by $\frac{3}{4}$ in. thick, and the top rails $16\frac{1}{2}$ in. and 18 in. long respectively, by $1\frac{1}{2}$ in. wide by 1 in. thick. The side rails are tenoned up into the top rails to the dimensions shown, and two small diagonal rails, 1 in. wide by $\frac{3}{4}$ in. thick, are screwed across the bottom of each frame. The top edges of the top rails should be rounded over, and the frames are hinged together with $\frac{1}{4}$ in. bolts or rivets,

FIGS. 2, 3, 4, 5.—ELEVATIONS WITH SIZES AND DETAILS.



iron washers being placed between the meeting rails to give a clearance.

THE BACK FRAME is made with two side rails, 21 in. long by $1\frac{1}{2}$ in. wide by $\frac{3}{4}$ in. thick, and two cross rails $18\frac{1}{4}$ in. long by $1\frac{1}{2}$ in. wide by $\frac{1}{2}$ in. thick, screwed together as at Fig. 4. The back frame is hinged to one of the bottom frames (Fig. 5), and the canvas seat is nailed to the top rails of the bottom frames.

Birch or a similar hardwood should be used to make the chair. (312)

IN MEDIEVAL TIMES the art-craftsman must have had a somewhat sorry time, for, unless in the service of the king or nobles, he was utterly dependent upon the monasteries and abbeys for employment and protection. It was therefore but natural that the carpenters and joiners, carvers and painters should reproduce the ornaments in domestic decoration which they had been accustomed to use for church purposes. In some respects, however, throughout the Middle Ages, Gothic and Tudor days, craftsmen were allowed more freedom than is the workman of to-day, since the details of the work were largely left to their skill and fancy. One of the resulting charms is the absence of mechanical repetition. The decoration of panels almost invariably differs; the workers' personality was allowed free play, and more than compensated for any lack of technical finish. (369)

DAY-BEDS.—The parlour of the Stuart period was usually a species of bedroom. In consequence, when its functions as a reception and sit-

ting-room were deemed sufficiently important to justify its entire disuse as a bedroom, the bed which had served as a resting-lounge during the day was missed; hence arose the "day-bed." The popularity at the Restoration of these day-beds was probably owing to their gay revolt against the sadness of Puritan colouring. The design was adapted from the new forms of chairs, the backs being adjusted with primitive simplicity to the desired angle by cords or chains. (369)

HANDICRAFTS ANNUAL for 1929 (price 1s.) is a bulky price list of over 400 pages. The needs not only of the fretcutter but of the amateur handyman are well catered for, and Messrs. Handicrafts show a wide range of turned, carved and embossed mouldings, oak pateras and other ornaments. Fretwoods and plywoods are a speciality, and there are many pages of excellent designs for inlay transfers. The catalogue may be had post free for one shilling direct from Handicrafts, Ltd., Lister Works, Weedington Road, London, N.W.5.

THE WOODWORKER

VOLUME XXXIV.

NOVEMBER, 1930.

NO. 444.

MAHOGANY BUREAU BOOKCASE

WITH FALL FRONT SECRETAIRE AND BARRED-DOOR BOOK CABINET

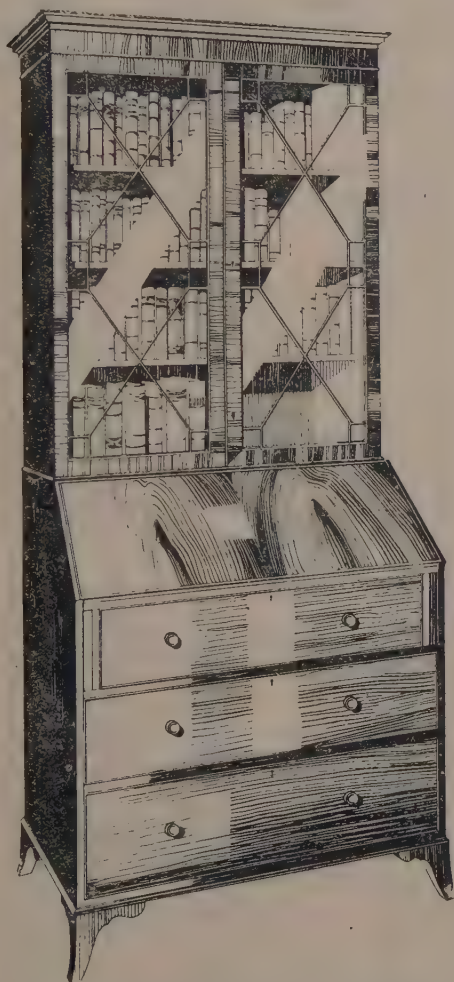


FIG. 1.—MAHOGANY BUREAU BOOKCASE, WITH FALL FRONT SECRETAIRE, DRAWERS AND BARRED-DOOR BOOK CABINET. WIDTH OVER CARCASE, 2 FT. 6 IN. HEIGHT OF BUREAU, 3 FT. 4 IN. OVER ALL HEIGHT, 6 FT. 3 IN.

THE bureau bookcase shown in Fig. 1 might appeal to readers who contemplate making up a similar article. The height allowed is 6 ft. 3 in., width 30 in., and depth 18 in. Contained in the upper carcase are three adjustable shelves. The lower carcase comprises three roomy and serviceable drawers and a pigeon hole unit for stationery and correspondence. The writing flap might be lined with hide.

Mahogany should be the first choice of timbers, but the design would adapt itself to either oak or walnut. Polish a mahogany job to a deep and rich plum colour, walnut to a mellow antique shade, or oak to a nice vandyke brown.

BOTTOM CARCASE.—Fig. 2 gives all the necessary sizes, whilst Fig. 5 gives a general survey of the method of procedure. Set out a rough working drawing of the writing flap and pigeon hole unit to ensure cutting the ends (H) to the correct and required angles. Rebate the bottom edges of the ends and allow the bottom board (I) adequate length to enter these rebates. Stop them 1 in. from the front and notch the bottom around at the front. Cut mortises $\frac{1}{2}$ in. deep and tenons $\frac{1}{2}$ in. long to correspond in the ends and drawer rails (T) respectively.

Treat the writing board (D) similarly. Dovetail the two top rails (C) to the ends. Cut mortises $\frac{1}{2}$ in. deep in the writing board and drawer rail for tenons $\frac{1}{2}$ in. long on the division clamps (Z), as shown in Fig. 8. Groove the drawer rails and runners (U, V, Fig. 7) on the required edges for the dustboards, and cut $\frac{3}{8}$ in. stub tenons on the front edges of runners to enter rail. Trench out the runners $\frac{1}{8}$ in. deep for the division (Y, Fig. 8). Rebates will be required on the back edges of the ends for the carcase back to enter.

Construct the carcase by dovetailing down the rails (C) to ends, inserting the tenons of the division clamps into the mortises cut in the writing board and drawer rails; fit the tenons of the rails into their respective mortises in the ends and then screw up the bottom board. Slip the divisions into place, slot screw the runners to ends, and slip the dustboards in from the back. Finally screw on the carcase back. Linings and guides are pinned to the ends to prevent the drawer sides running against solid ends.

THE PIGEON HOLE UNIT can be made up either as shown in Fig. 2 or Fig. 5. Whilst in Fig. 2

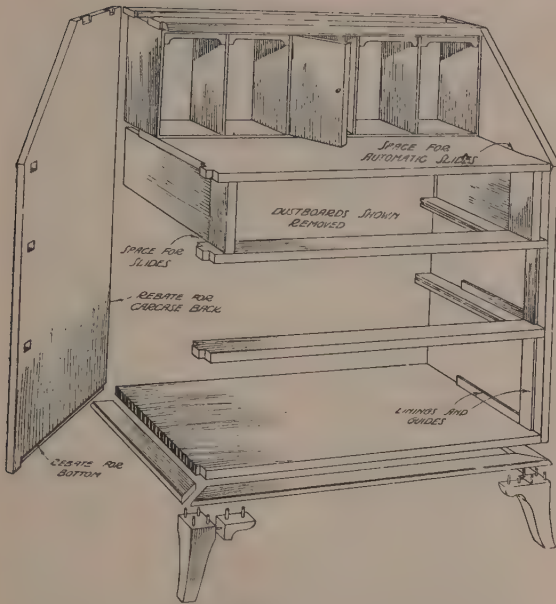


FIG. 5.—CONSTRUCTION OF LOWER CARCASE.

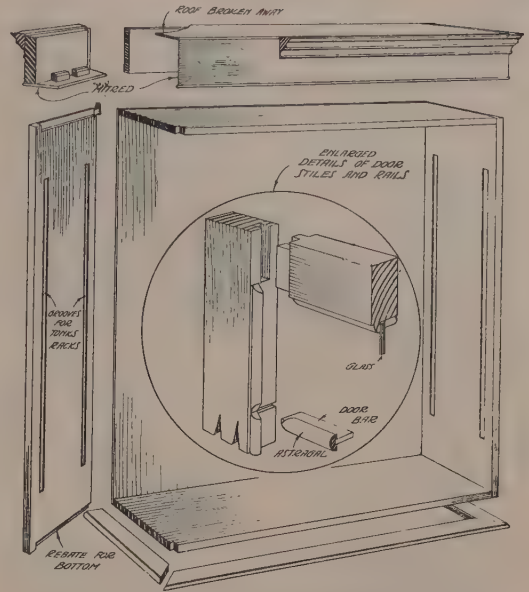


FIG. 6.—CONSTRUCTION OF UPPER CARCASE.

carcase back, also trench out $\frac{3}{4}$ in. wide and $\frac{1}{8}$ in. deep for the Tonks racks.

The door stiles and rails must have an ovolo moulding and rebate worked on the inside edges. A parting bead has been introduced on the centre meeting stiles (M: see Fig. 7). Haunch-mortise the rails to the stiles. The door astragal is of a half-round section and is mitred into the ovolo moulding on the stiles and rails. The cabinet glass is beaded in from the back.

Hang each door upon a pair of $2\frac{1}{2}$ in. brass butts, fit a pair of small bolts to the left and a lock to the right hand door.

The CORNICE rails (Figs. 4 and 6) are mitred and dovetail-blocked at the front corners and rebated and screwed at the back. The linings are mitred underneath, and screwed up into the rails and

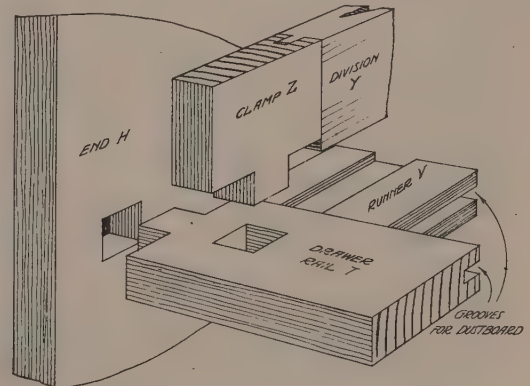


FIG. 8.—DETAIL OF DRAWER RAIL.

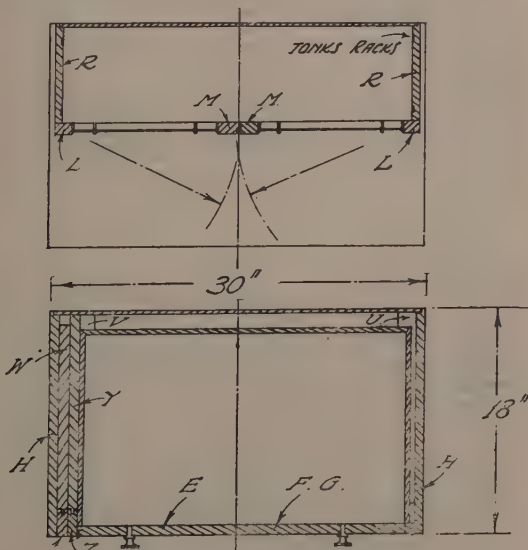
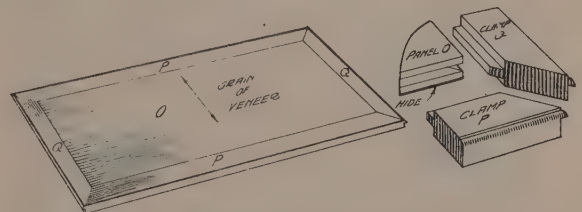

FIG. 7 (ABOVE).—PLAN OF TOP CARCASE;
(BELOW), PLAN OF TOP DRAWER AT LEFT,
PLAN OF BOTTOM DRAWER AT RIGHT.


FIG. 9.—CONSTRUCTION OF WRITING FLAP.

blocked inside as shown in Figure 6. The roof is dropped down on top and screwed. Select a good cornice moulding and apply it so that it covers the joint of the roof and rails. Fit position blocks on the carcase top (S) to determine the cornice. Finally clean down the whole job with a fine glasspaper and leave for polishing.

A more pleasing effect is obtained if the door stiles and rails, together with the cornice frieze, are veneered with a good fiddleback knife cut veneer. As this course would entail little labour in comparison with the finished appearance, it is well worth adopting, and is left to the intending maker's own discretion as to what veneer is finally used.

TIMBER CUTTING LIST:—			
	Long. ft. ins.	Wide. ins.	Thick. ins.
A 4 legs	0 6	2½	2½
B 6 ear pieces	0 2½	2	1½
C 2 top rails	2 5½	3	1
D 1 writing board	2 5½	10	7½
E 1 drawer front	2 1½	5½	7½
F 1 drawer front	2 4½	6½	7½
G 1 drawer front	2 4½	8½	7½
H 2 outside ends	2 0½	18	3½
I 1 carcase bottom	2 5½	17½	3½
J 2 cornice rails	2 6	4½	3½
K 2 cornice rails	0 9	4½	3½
L 2 door stiles	2 5½	1½	7½
M 2 door stiles	2 5½	1½	7½
N 4 door rails	1 2	1½	7½
O 1 writing flap panel	2 1	8½	1½
P 2 clamps	2 5½	2½	7½
Q 2 clamps	1 1	2½	7½
R 2 carcase ends	2 5½	8½	7½
S 2 top and bottom	2 4½	8	3½
T 2 drawer rails	2 5½	2½	3½
U 2 drawer runners	1 3½	1½	3½
V 2 drawer runners	1 3½	3	3½
W 2 slides	1 3½	5½	3½
X 2 slide clamps	0 5½	2½	3½
Y 2 division clamps	0 6½	2½	3½
Z 2 divisions	1 4½	6	3½

Also required:—

1 cornice moulding ...	2 10	2½	1½
2 cornice mouldings...	0 11	2½	1½

	Long. ft. ins.	Wide. ins.	Thick. ins.
3 shelves	2 3½	8	2½
1 stool lining	2 7	2½	8
2 stool linings	1 6½	2½	8
2 surbase linings	2 6	2½	1½
2 surbase linings	0 10	2½	1½
2 drawer sides	1 4	5½	1½
2 drawer sides	1 4	6½	1½
2 drawer sides	1 4	8½	1½
1 drawer back	2 1½	4½	1½
1 drawer back	2 4½	5½	1½
1 drawer back	2 4½	7½	1½
1 drawer bottom	2 0½	16½	1½
2 drawer bottoms	2 3½	16½	1½
2 pigeon top and bottom	2 3½	8½	1½
2 pigeon ends	0 9	8½	1½
2 pigeon divisions	0 8½	8½	1½
2 pigeon divisions	0 7	8½	1½
2 pigeon shelves	0 10½	8½	1½
2 pigeon shapes	0 10½	1½	1½
1 pigeon door	0 8½	6½	1½
4 drawer guides	0 10	1½	1½
4 drawer linings	0 8½	1½	1½
1 cornice lining	2 6½	2½	1½
2 cornice linings	0 10	2½	1½
1 roof	2 6	9	1½
1 carcase back	2 5½	28½	1½
1 carcase back	2 9½	29½	1½
2 dustboards	2 2½	15½	1½
1 for door astragal ...	24 0 run	3½	1½
1 for door bars	24 0 run	3½	1½
1 for door beads	60 0 run	3½	1½

All sizes are strictly net and allowance must be made for cutting and general cleaning up.

As a guide to timbers, items A to T, and also W and Y should be of selected firm mahogany with good figure. Whitewood will suffice for items U, V, W and Z. Keep to mahogany for the drawer interiors and pigeon hole unit, also for the bookcase carcase above. Use a good ply for the writing flap panel (O), also for both of the carcase backs and roof. Whitewood will be suitable for drawer linings and guides. (397)

THE ADAM STYLE associated with the Brothers Adam owed its inception chiefly to Robert, the second of the four sons of William Adam of Maryburgh, himself the architect of Hopetoun House, and the King's mason, at Edinburgh. In Italy Robert Adam especially devoted himself to making the drawings he afterwards published of the Emperor Diocletian's palace in Dalmatia. He was arrested as a spy, using his art as a cloak for sketching fortifications, and completed his drawings under the constant supervision of a military officer. At the conclusion of his travels he settled in London, and was later appointed architect to the King and Queen.

Upon Robert entering into partnership with his brother James they became known as the *Adelphi*

(Brothers). Their progress was so rapid that they leapt rather than stepped into fame as the fashionable classical architects. Even the financial failure of their bold architectural and building speculation, the *Adelphi* (that well-known range of streets built upon the arches on the foreshore of the Thames), was but a temporary check to their career. They designed exclusively for the nobility and other wealthy clients, and enriched London architecture with the many noble buildings accredited to them. Robert Adam appears to have been somewhat gifted as a landscape painter, and the pall-bearers at his funeral in Westminster Abbey included the Duke of Buccleuch and the Earls of Lauderdale and Coventry.

CHIPS FROM THE CHISEL

SOME RECENT EXPERIMENTS

NOWADAYS there is a great tendency to experiment with materials, as though improved methods of production had stimulated the desire to give them the widest possible range of use. This has been particularly exemplified during the past few weeks by two interesting developments. The one shows steel taking a prominent place in street architecture, and the other shows it in use, at any rate experimentally, in furniture.

* * * *

The first is to be seen in a building which has recently been erected in High Holborn, the very first example to appear in England of the new twentieth century architecture with which experiments have already been carried out on the Continent. It is built up, as it were, in definite bands of material; polished black marble on the ground floor, and then, higher up, alternate bands of plastered brick and glass—the glass bands being the windows, so arranged that they are continuous, with no wall between but only broad mullions of stainless steel which cover the supporting stanchions. These have a distinctly decorative effect, reflecting as they do the maximum of light in their shining surface, which, together with the fine twinkling surface of the marble below, gives an unexpected quality of vitality to the building. Hard and rigid, yes, the whole thing is that, with its severe lines and absence of any attempt at extrinsic ornamentation, but the design has thrown the whole responsibility for decorative effect upon the materials themselves, and it is interesting to see to what extent they have responded and yielded up beauty.

* * * *

Metal furniture, such as cupboards, shelves, etc., is now a fairly common feature in business houses, but at Heal's recently there were shown experiments in steel furniture that is intended for purely domestic use. The frames were built up of tubular, chromium plated steel, for the most part designed on lines of their own, that is to say, true to the needs of the tubular lines as distinct from the angular effect of woodwork. Among the articles shown were a dressing table in steel and glass, with a stool to match; some chairs, designed in long gradual curves which had an attraction of their own, leather being the material used for the seats and backs; and a dining table with a stainless steel surface. It was interesting to see what could be done with the material, and possible to see its undoubted effectiveness and how in a carefully designed modern setting it would have real beauty. The appeal, however, was purely æsthetic and one could not help the feeling that for the home a great deal more enters in than pure æstheticism. There is, of course, the question of usefulness and hygiene; a factor that may well be given special prominence in, say, an office or the operating theatre of a hospital, but there is also the necessity for the sense of comfort, and that is something which is not apparent with steel furniture.

And so we come back to wood; so various in kind and so varied in possibilities against the severity of metal. In a recent novel, *The Edwardians*, the head carpenter on a large estate cries out in defence of wood: "What's screwing up a nut beside handling a nice piece of wood? Such nice pieces of wood as I have lying out in the timber-yard, too; will be as ripe as a violin in forty years or so. Just right for Frank to handle by the time he's sixty. He could make panelling out of them—anything! I picked the oak for the grain myself; Mr. Reynolds, he wanted to saw them up for firewood, but I wouldn't let him. I said it'd be a shame. Oak that came down in the gale three winters ago. I cut it into planks and left it out in the yard to weather. I showed it to Frank and 'Frank,' I said, 'when you're sixty and need a nice piece of wood you'll find it here, and don't you forget your father put it there for you.'"

* * * *

That is just the kind of spirit that wood engenders. There is a friendliness about it which makes it the best of all materials for working on. It may be that, almost unconsciously, we keep a sense of its history—the growth of the tree and its contact with the earth, the fact that it has its birthdays and marks them with a ring; the rise and fall of the sap, the feeling that here is life existing side by side with our own and altogether benign, giving protection and loveliness while it is rooted in the soil and, after its fall, entering literally into hearth and home to do kindly service still. Wood is one of those things which preserve the Hans Andersen touch against the fret and push of modern life. It is possible to think that our "sticks of furniture" may have their little gossip together at night, as they do in the fairy tales, for even if many of them do happen to be machine made there is still the quality of the wood remaining, still something that is sensitive to surroundings and can be drawn into harmony with them. Best of all is when such furniture can be worked by hand, and thought and careful planning and patient labour have gone to its making. One of the great attractions of really old furniture, quite apart from any quality of style, is that it seems to have absorbed something of the atmosphere of the past. It has mellowed; it has history; it is a friend.

* * * *

Yet even metal comes to us with quite a different appeal when the smith, and not the machine, has wrought upon it and given it a human significance. We treasure to-day some of the fine ironwork that was fashioned in London in the eighteenth century, in gates, railings, lamp-holders, door brackets, balconies and staircases, well designed and well wrought; but will our descendants cherish in quite the same way, two hundred years hence, the sheets of stainless steel which may have formed a functional part of some twentieth century building? We hardly think so.

FOR CHRISTMAS

A LADY'S WORK TABLE

THIS neat and handy work table would be an ideal Christmas present for a lady. Its simple construction and low timber cost should especially appeal to home craftsmen. Mahogany would be the most suitable wood to employ, while the suggested dimensions are 16½ ins. by 14 ins., with a height of 2 ft. 6 ins.

CONSTRUCTION.—The article consists of two separate portions which, when complete, are screwed together, i.e., the upper box or well and the lower stand or table. The well front, sides and back (D and E) should be in nicely figured wood, using the same stuff for the lids (F, G and J). A good method of jointing is to secret dovetail the box, although this joint may be a difficult proposition to the amateur. Other suggestions are shown in Fig. 5. No. 1 shows the box sides ¾ in. thick, through-dovetailed together, and faced up all round with ½ in. thick facings mitred at the corners. Another way is to tongue and groove the box as at No. 2. The butt joint may be concealed by veneer. Alternatively No. 3 shows a cross-tongued mitred joint and for all practical purposes this is the best. Before glueing up the well, rebate the bottom edges for the bottom (S).

THE LIDS will be jointed similarly to the well. Each lid will have four sides. The tops are moulded to finish flush with the outside edges and are glued and pinned in position, the pin holes being afterwards filled in. The lids are hinged with a pair of 1¼ in. brass butt hinges to each, or card table hinges could be used. The cocked bead round the lid should project very little.

THE TABLE.—The finished upper portion should be worked to the size of the table part, which

FIG. 1.—A LADY'S WORK TABLE. SIZE 16½ INS. BY 14 INS. BY 2 FT. 6 INS. HIGH.

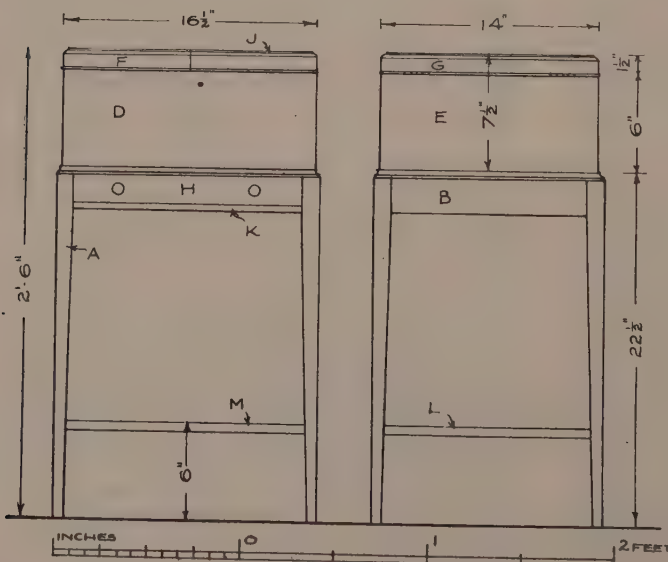


FIG. 2.—SCALE FRONT AND SIDE ELEVATIONS.

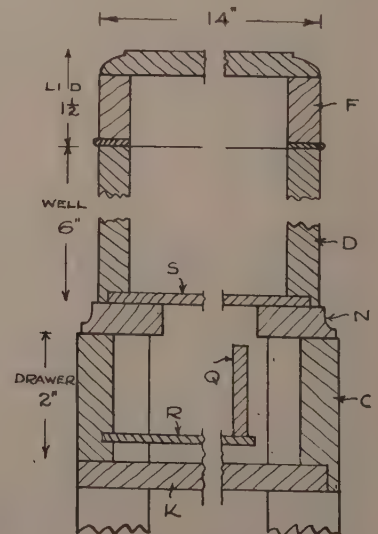


FIG. 3.—ENLARGED SECTION.

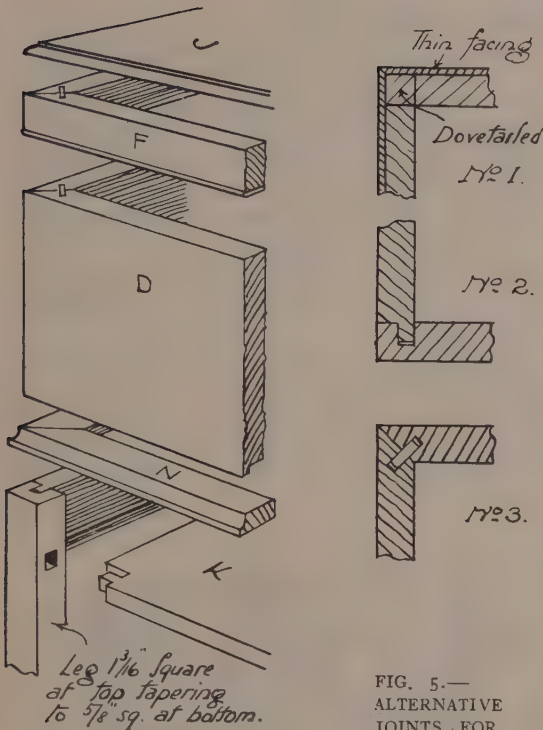
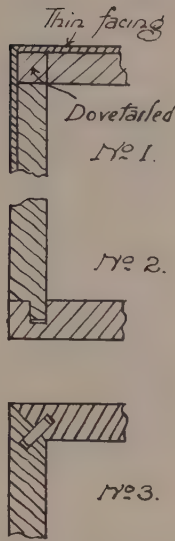


FIG. 4.—CONSTRUCTION.

projects $\frac{1}{8}$ in. all round. The legs (A) are out of $1\frac{1}{2}$ in. squares, finishing about $1\frac{3}{8}$ in. at top and tapering to about $\frac{3}{8}$ in. at bottom. The inner sides of the legs are tapered only, as shown, giving a slightly splayed and sturdier appearance, but the tapering might be done on all four sides if desired. The side rails (B) and back rail (C) are tenoned and rebated to take the bottom

FIG. 5.—
ALTERNATIVE
JOINTS FOR
LID.

(K). This bottom could be in gaboon or cheap African mahogany. It has short tenons into the front legs and is glued and screwed into the rebates in rails (B and C). The stretchers (L and M) are stub tenoned together and tenoned to the legs.

IN ASSEMBLING, the end rails and stretchers are glued up first. When set, complete by adding back rail (C), bottom (K) and centre stretcher (M). The plate mouldings (N and O) are mitred to form a frame and screwed down in position. The small drawer should be nicely dovetailed together. Drawer slips are best, but the bottom might be run in grooved sides.

The well can now be fixed to the table portion by screwing with small screws through the well bottom. A padded bottom to the well would add greatly to the appearance.

CUTTING LIST:—

		Long. ft. ins.	Wide. ins.	Thick. ins.
A	4 legs	1 10	1 1/2	1 1/2
B	2 Rails	1 2	2 1/2	1/2
C	1 Rail	1 4 1/2	2 1/2	1/2
D	2 For well	1 4 1/2	6	1/2
E	2 Ditto	1 2	6	1/2
F	4 For lids	0 8 1/2	1	1/2
G	4 Ditto	1 2	1	1/2
H	1 Drawer front ...	1 2 3/4	2 1/2	1/2
J	2 Tops	1 2	8 1/2	1/2
K	1 Bottom	1 4 1/2	14 1/2	1/2
L	2 Stretchers	1 2 1/2	7/8	1/2
M	1 Ditto	1 5	7/8	1/2
N	2 Plate mouldings ...	1 5	1 1/2	1/2
O	2 Ditto	1 2 1/2	1 1/2	1/2
P	2 Drawer sides	1 0 1/2	2 1/2	1/2
Q	1 Drawer back	1 2 1/2	1 1/2	1/2
R	1 Drawer bottom ...	1 2 3/4	12 3/4	1 1/8
S	1 Well bottom	1 4	13 1/2	1 1/8

All sizes are net excepting drawer front and sides on which $\frac{1}{8}$ in. is allowed for fitting. (416)

GREENHEART is a fine engineering and shipbuilding timber which has many excellent qualities to recommend it. The timber is a produce of the virgin forests of British Guiana in South America, from whence all the supplies arriving in this country are derived. It, however, exists in Dutch Guiana, and probably other districts in Central America, but the British Guiana wood is recognised as by far the most superior. The timber has, in a similar way to teak, an outstanding feature, for whereas the Indian wood is the only timber known that will not suffer when in contact with iron, greenheart stands pre-eminent as the wood that will withstand the ravages of the teredo, that deadly sea-worm that plays havoc with all other woods when submerged in sea water. Thus the uses of this wood are largely confined—otherwise than for shipbuilding purposes—to such work as piles, piers, bridges, dock gates, staithes, groins and for all purposes where the action of the sea and the destructive marine insects are to be kept at bay. The great lengthy pier at Ostend was en-

tirely constructed of greenheart, the lock gates in the great Liverpool docks and in the Manchester Canal are also made of this timber. Nansen's ship, the *Fram*, and the Antarctic ship *Discovery* were entirely constructed of greenheart, and it is used in a similar way in every part of the globe. The timber is exceedingly strong, perhaps one of the strongest that exists, and exceptionally heavy, its weight being about seventy pounds to the cubic foot. It is also remarkable for its elasticity, and is esteemed perhaps above all other woods for the minor purpose of the manufacture of salmon and trout fishing rods, such rods recovering their straightness, after playing heavy fish, in a way that is equal to a piece of steel.

REMEMBER that we shall be pleased to post a specimen copy of *THE WOODWORKER* to any of your friends, likely to be interested, if you will send their names and addresses to Evans Bros., Ltd., Montague House, Russell Square, W.C.1.

HOME CARPENTRY

MAKING A WORK BENCH

SEVERAL readers whose accommodation is somewhat limited have asked how to make a work bench which, when not in use, may be folded up and put away edgewise against the workroom wall. Whilst responding to numerous requests, however, we wish to emphasise that no folding bench can ever be so firm and rigid as a fixed type, and for this reason we shall discuss the making of both types.

FOLDING BENCH.—The workbench illustrated at Fig. 1 is 5 ft. 6 in. long by 2 ft. wide, the height from floor being 2 ft. 8 in. This latter measurement may be varied according to the height of the user. The top is formed by three planks of red deal or beech, these being grooved and fitted with loose slips at their inside edges. They are fastened together by screwing on to them two ledges (or cross pieces) which are 3 ins. wide and 2 ins. thick. The legs consist of two framed trusses formed entirely out of 3 in. by

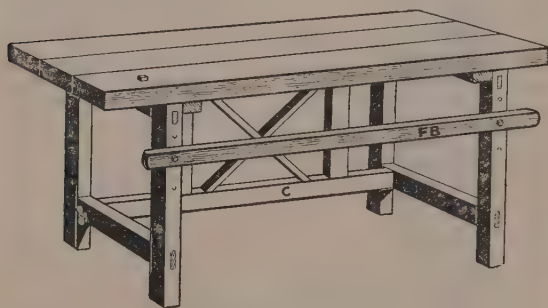


FIG. 1.—FOLDING BENCH, 5 FT. 6 IN. (OPEN).

2 in. red deal or Oregon pine, mortised and tenoned together, and fixed with wooden pegs by the draw-bore pinning method. The top of the leg trusses are hinged to the ledges (L, Fig. 2) so that they will fold inwards; when the leg frames are opened, the top of the bench engages and rests on top rail and the end of the legs.

The leg frames when opened should fit close against the ledges so as to make for rigidity. The ledges thus act in a certain measure as stops to prevent the bench collapsing, but not sufficiently to make it firm enough to work on. It is necessary therefore to fit between the legs a braced frame as shown in the illustration. This frame is hinged to the under side of the bench top so that it will fold down quite flat and allow the long bottom rail (C) to protrude beyond the ends of the ledges as at Fig. 3. The leg frames then fold down on top of it as suggested in Fig. 3, which depicts the bench folded up.

The long bottom rail (C) of the braced frame must be made to fit closely between the leg frames. When opened it is secured in position by the wing nuts, hinged bolts, and slotted plates as seen in the various illustrations. To stiffen up the front of the bench a bench-rail is used (see Figs. 1 and 3, F, B), the rail being adjustable in height so that it forms a support to the long boards when planing their edges for jointing.

A simple method of fastening this front board is to use square-headed coach screws which have a hole bored into one side of the square head so as to take a tommy bar (Fig. 4). If pieces of iron be put through these coachscrews in a similar manner to a vice handle they have a tendency to catch and tear the workman's apron or overall.

For the bulk of home carpentry work a wooden wedge vice may be fixed and used as at Fig. 5; but, if thought necessary, the worker can go to the expense of fitting either a small Parkinson or wooden type of woodworker's vice having 6 in. or 8 in. jaws.

For a bench stop to hold the wood when planing there is nothing to beat a piece of 1½ in. by 1½ in. birch about 5 ins. in length. This square stop should fit tightly into a mortise hole which is cut through the bench top. The top should be carefully planed up true in length and out-of-winding because nothing is more irritating than to attempt

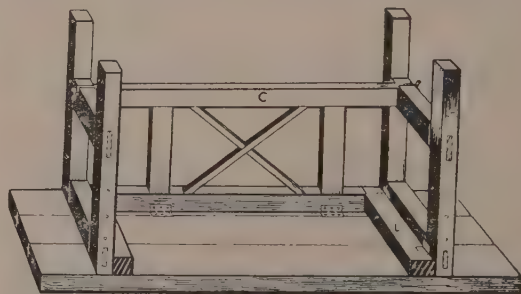


FIG. 2.—BENCH SHOWN UPSIDE DOWN.

to plane up thin strips of wood on a bench top which is unlevel. Another suggestion to workers when planing thin laths or boards is to rub the surface of the bench and the face of the strip with common chalk.

FIXED OR WORKSHOP-BENCH.—The framework for a workshop bench is illustrated in the perspective sketch given at Fig. 7. One advantage of this type is that, although it is semi-portable and quite rigid, the top and the leg frames may be unfastened from the four long stretcher rails for convenience of removal in considerably less than half an hour. The top is 6 ft. long and is of good sound birch or beech, measuring 15 ins. wide and 3 ins. thick. The plank should be carefully selected and the annular rings should run as nearly as possible at right angles to the width so as to avoid undue shrinkage. If it cannot conveniently be obtained in one piece, it should be glue-jointed by grooving both the pieces and inserting a tongue of 5 mm. plywood.

The legs and framing are chiefly of 3 in. by 3 in. red deal, and the construction is by the use of the mortise and tenon joint which is fixed in position with the aid of stout screws.

The leg frames are glued together, but the four long stretcher rails are left dry-jointed to facilitate easy removal when required. The top is fixed to the bench framing with coach-screws

which are put through the under side of the pieces A. The bench trough is 7 ins. wide.

At Fig. 6 is given a sketch of the front stretcher rails which illustrates the method used to fix the peg board. This board is adjustable and a hardwood peg is turned to such a diameter that it tightly fits into the holes so that, when jointing long and wide boards which are held at the left hand by the bench vice, the peg will support the opposite end. The peg board may be 7 ins. wide and 1 in. thick.

A suitable all-metal type woodworker's vice is fitted under the top board and close up to the left hand front leg, and a tool drawer may, if required, be fixed between the top rail (B) and the underside of the bench top. One objection to a drawer in a workshop bench is that it often prevents the bench top from being bored to receive a bench holdfast which may be required when mortising or sawing, and furthermore the loose tools which are kept in the drawer rattle about and lose their keen edges owing to the vibration.

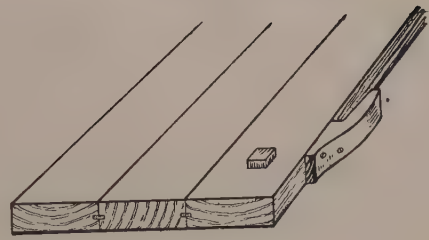


FIG. 5.—METHOD OF JOINTING TOP AND MAKING WEDGE VICE.

Whichever type of bench the home carpenter decides to construct, it is advisable to draught (on a piece of paper or three-plywood) a full sized set-out of the leg trusses. This is especially necessary to obtain the bevelled tenon joints for the bench shown at Fig. 7. To cheapen the cost the maker could substitute clean white deal wood for the legs and stretchers if he so desires. (415)

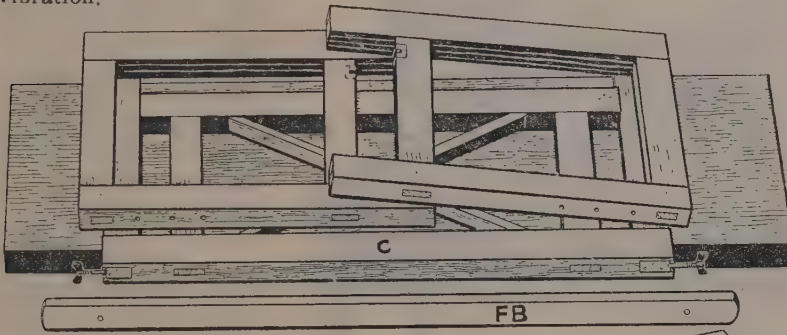


FIG. 3.—BENCH FOLDED (PIECE F, B REMOVED); ALSO DETAIL OF WING NUT AND HINGED BOLT.

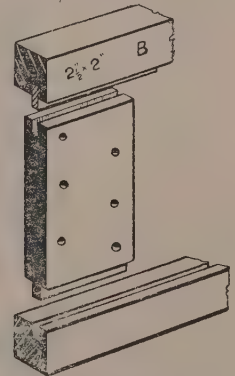


FIG. 6.—SLIDING ARRANGEMENT OF PEG BOARD.



FIG. 4.—COACH SCREW AND TOMMY BAR.

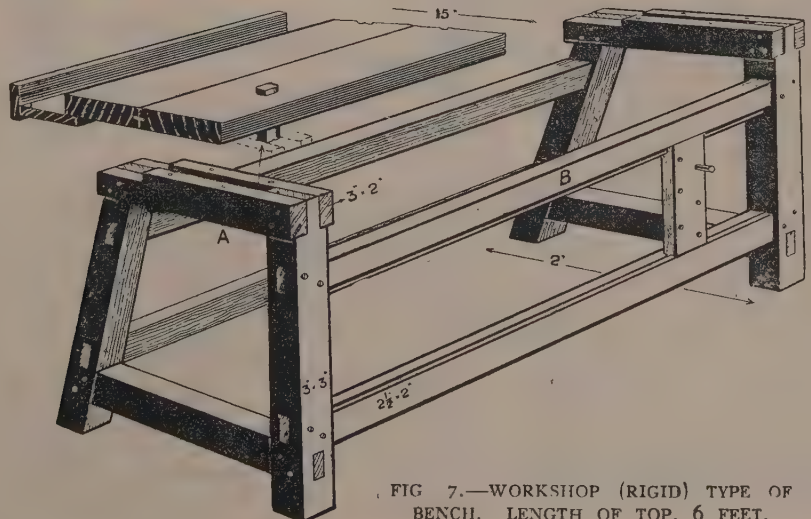


FIG. 7.—WORKSHOP (RIGID) TYPE OF BENCH. LENGTH OF TOP, 6 FEET.

WELSH TYPE OF DRESSER

IT is the increasing use of the living room in place of separate dining and drawing rooms which is mainly responsible for the popularity of the dresser. To build two rooms into the modern house of the small villa type would result in both being too small for practical use. Something better than the kitchen dresser is required, of course, but at the same time it must be a structure that will stand up to hard wear. The oak dresser answers the purpose admirably. It has the necessary accommodation, and oak is not so likely to mark as such woods as mahogany and walnut, which require a high french polish finish.

The dresser in Fig. 1 is founded on the lines of the old Jacobean prototype, but a few modern details have been added. The length of 3 ft. 6 in. is convenient for most houses, although a few inches can be added if a slightly larger piece is desired. The introduction of three drawers in place of two larger ones has its advantages. Those who care to go to the trouble can fit out one with a sliding tray for cutlery.

Fig. 4 gives the general construction of lower carcase. The sides and back are framed with grooved-in panels. All joints are of the mortise and tenon type. Suitable sets of legs can be obtained ready turned. They finish $1\frac{1}{2}$ in. square in section. Handscrew together all four and square across them the lines marking the joints. They can be separated afterwards and the marks squared to the adjacent faces where necessary. A point to note in the side and back joints is that the mortises have to set back from the panel edges by the depth of the grooves. This is because the last-named automatically cut away the tenons by their depth. The top edges of all the joints of the upper rails have also to be set in about $\frac{3}{4}$ in.

THE MORTISES must be cut before the grooves are worked, because it would be difficult to place the chisel in position otherwise, apart from the grooving removing part of the marks. It is impossible to use the plough entirely for the grooves, but it should be used as far as possible. The lower ends can be finished partly with the chisel

and router. Those who have no plough can use the router entirely, fixing a gauge piece across its face and using it rather as a scratch. If this is done it will be found an advantage to set the cutter well in at the start, and knock it out as the work proceeds until the finished depth is reached. The important point is to give it the same maximum depth for all four legs.

Proceed next with the rails, cramping them together in sets when marking out as in the case of the legs. Use a chisel for marking and square the marks round on to all four sides after separating them. Before this, however, the mortises for the uprights in back and front should be marked. A pencil is used for these. After sawing the tenons, the grooves can be worked. The plough can run right through in every case. The shaped front rail is worked after the joints have been cut.

WHEN ASSEMBLING, glue up the ends independently and allow them to set. Front and back rails can then be added. Remember to insert the uprights before fixing the rails to the legs. Test for squareness in both plan and elevation.

DETAILS OF THE INTERIOR FITTINGS are given in Fig. 3. The end runners can be screwed to the side rails. Those in the centre have stub-tenons at the front and are butted at the back. long nails or screws being driven in to hold them. They must be wide enough to project both sides of the uprights. Guides are

glued and nailed to the top surfaces. Only two kickers are needed. They can be skew nailed and glued in position as they take no great strain.

Fig. 5 shows how thin bevelled strips are applied to the uprights to give a decorative finish. They run right through across both rails. The same illustration also shows how a length of thin carved moulding or a fret is applied to the centre drawer. It should be high enough to clear the handles, which are in the centre. The drawers are dovetailed together in the usual way. The top is fixed with pocket screws driven through the rails. An ogee mould is worked around front and side edges.

UPPER CARCASE.—Construction details of the



FIG. 1.—WELSH DRESSER : 3 FT. 6 IN. WIDE,
6 FT. HIGH.

upper carcase are given in Fig. 3. This view is taken from the rear. The top is lap-dovetailed to the sides, but all the other joints are bare-face dovetails running across the width. Take care that the various corresponding parts are the same length before marking and cutting the joints. The shelf dovetails must be stopped about $\frac{3}{8}$ in. from the front edge. When cutting them, chisel a depression at the stopped front edge so that the saw can run in these when worked from the back edge. The saw is, of course, held at an angle when cutting the dovetailed side. Note that top, shelves and intermediate uprights are narrower than the ends by the depth of the rebate to hold the back.

An enlarged view of the foot is given in Fig. 6. Apart from its decorative value, the provision of this is desirable as it tends to prevent the dresser from falling forwards. A stub-tenon or tongued joint is used for fixing to the ends. Before assembling, plate grooves should be worked along the shelves. They should sink in about $\frac{3}{8}$ in. at the front and run out to nothing at the back. Make the front edge of the grooves about $2\frac{1}{2}$ in. from the back of the shelves.

When putting together, fix the shelves to the ends first, add the top, and slide in the inter-

mediate uprights last. When the glue has set the cornice can be mitred round. It is advisable to nail a dustboard over the whole (see Fig. 2). The top shapes are glued in position and glue blocks are rubbed in at the back to strengthen them.

The back is a series of tongued and grooved boards fitting in grooved rails at top and bottom. The ends of the rails can be cut so that the whole fits flush in the rebates in the ends. Dowels are used to fix the dresser to the lower carcase. They are glued to the former and fit into the holes in the top dry.

(Figs. 4, 5 and 6 and Cutting List on next page).

MESSRS. NEWNES are issuing a new serial, *Newnes' Home Mechanic*, in twenty-four weekly shilling parts. The work professes to appeal to the average householder who takes a natural interest in keeping his home in repair. It is printed on excellent paper and the articles are exhaustively illustrated. The opening parts are now out and may be had from the newsagents.

"TIMBERS FOR WOODWORK," hardwood and softwoods, 3/6 net.—Evans Bros., Ltd., Montague House, Russell Square, W.C.1.

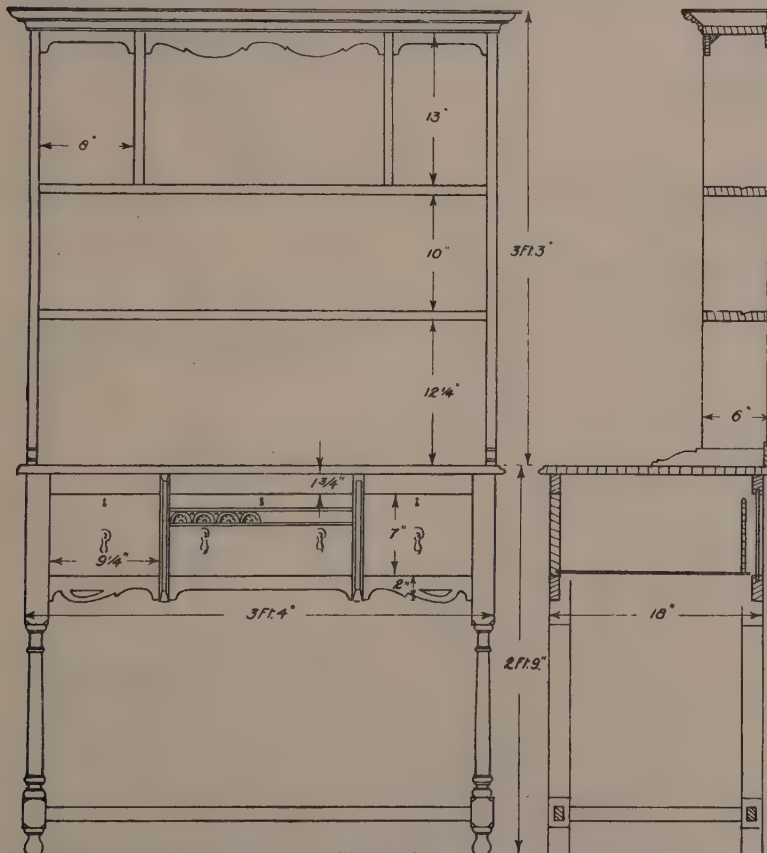


FIG. 2.—FRONT AND SIDE ELEVATIONS, WITH SIZES.

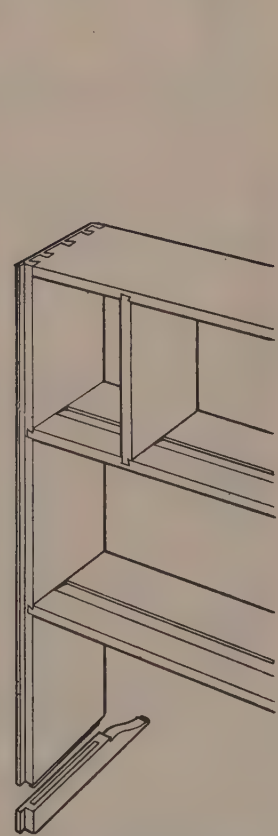


FIG. 3.—UPPER CARCASE (FROM THE BACK).

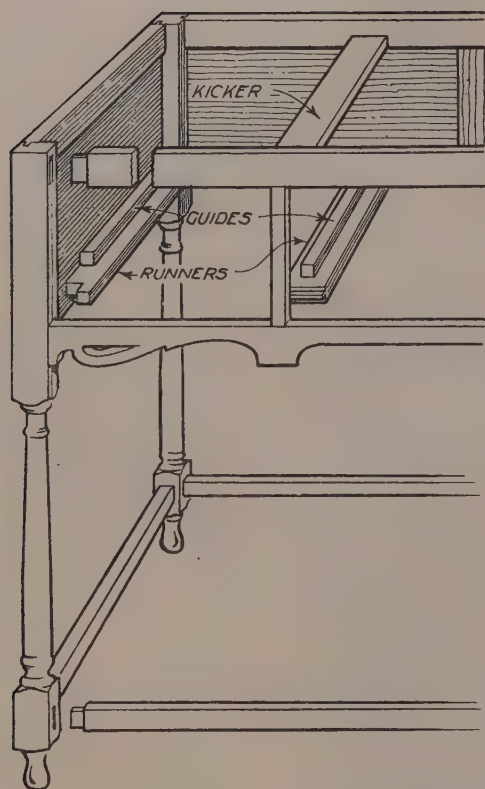
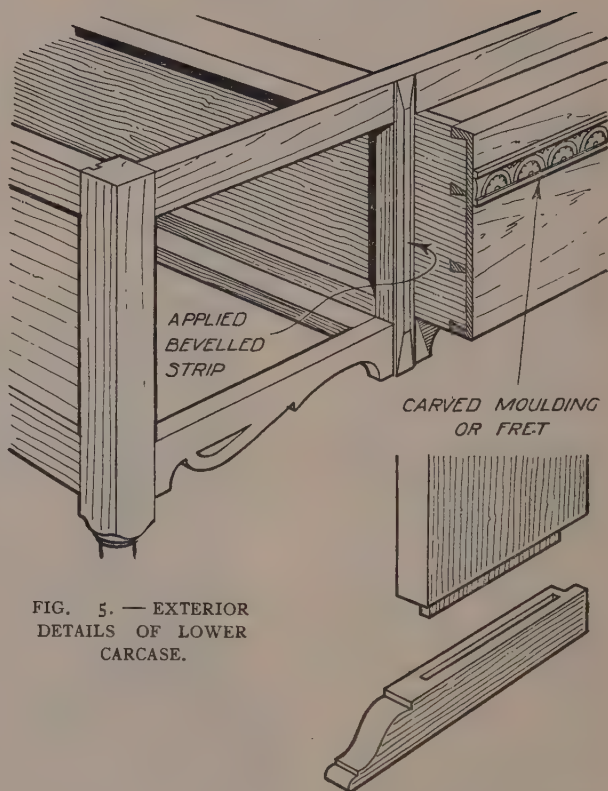


FIG. 4.—THE LOWER CARCASE.

FIG. 5.—EXTERIOR
DETAILS OF LOWER
CARCASE.FIG. 6.—FOOT OF UPPER
CARCASE.

CUTTING LIST:—BOTTOM CARCASE.

	Long. ft. ins.	Wide. ins.	Thick. ins.
4 legs	2 9	1 7/8	1 7/8
2 rails	3 4	1 7/8	7/8
2 rails	3 4	2 3/8	7/8
2 rails	1 6	1 7/8	7/8
2 rails	1 6	2 3/8	7/8
2 uprights	0 11	1	7/8
1 upright	0 11	2 1/2	7/8
2 stretchers	3 4	1 1/2	7/8
2 stretchers	1 6	1 1/2	7/8
2 panels	1 3	7 3/4	3/4
2 panels	1 5 1/2	7 3/4	3/4
1 top	3 6 1/2	19 1/2	3/4
2 runners	1 5	2 1/2	7/8
2 runners	1 5	3	7/8
2 kickers	1 5	3	7/8

TOP CARCASE.

	Long. ft. ins.	Wide. ins.	Thick. ins.
2 fronts	0 9 1/2	7 1/2	7/8
1 front	1 4	7 1/2	7/8
2 backs	0 9 1/2	7	7/8
1 back	1 4	7	7/8
6 sides	1 5	7 1/2	7/8
2 bottoms	0 9	17	ply.
1 bottom	1 3 1/2	17	ply.
2 ends	3 1 1/2	6 1/2	7/8
2 feet	0 11	2	7/8
3 shelves and top	3 4	6	7/8
2 uprights	1 3	6	7/8
2 shapes	0 8 1/2	2 1/2	7/8
1 shape	1 9	2 1/2	7/8
2 back rails	3 4	2 1/2	7/8
Back requires about 10 ft. super.			(409)

TUDOR TABLES.—The draw table (or draw-extension table) was introduced into England not long after the middle of the sixteenth century. Its principle is so effective that one hardly regrets that, after the long reign of the screw-extension, it has now regained its former popularity. Briefly stated, the object of the draw-table is to double the length and consequent dining accommodation of the table. This it achieves by means of two shelves, sliding under the central top, but so ar-

ranged that upon their being drawn out, the upper top falls into their place, thus forming a level surface. The tops of the long tables were often made so thick that their weight alone would have sufficed to keep them in place. The length of some old refectory tables is surprising; one exists at Penshurst nearly thirty feet long. The enormous leg bolts so characteristic of the period were frequently built up, even in olden times, of pieces fastened round the leg and carved. (369)

THE HANDICRAFT CENTRE

SHOE CABINET

ALTHOUGH a shoe cabinet may be numbered amongst the less important pieces of furniture, it contributes much towards tidiness and comfort in the home. The cabinet sketched at Fig. 1 is of pleasing appearance, suitable for construction in almost any wood, from an inexpensive kind stained and varnished to a choicer material such as oak. The cabinet, which is enclosed with a pair of doors, will comfortably hold a dozen pairs of shoes; the top is hinged, and underneath is a tray which may be used for slippers or divided into compartments for socks, laces, etc. The material should finish $\frac{1}{2}$ in. thick.

THE SIDES (A) are 3 ft. 2 $\frac{3}{8}$ in. long by 1 ft. 1 in. wide, and are joined by a top shelf (B) 1 ft. 7 $\frac{1}{2}$ in. long by 1 ft. 1 in. wide, and a bottom shelf (C) 1 ft. 7 $\frac{1}{2}$ in. long by 1 ft. wide. The shelves should be tenoned or dovetail-grooved into the sides in the positions given at Figs. 2 and 3. The front and back of the tray (D and E) are 1 ft. 7 $\frac{1}{2}$ in. long by 4 in. wide, grooved into the sides as at Figs. 4 and 5, the front being kept $\frac{1}{2}$ in. in from the edges. If the tray is to be divided, thin wood should be used for the divisions, which should be grooved $\frac{1}{2}$ in. into the front and back, and arranged as at Fig. 4 or to suit individual needs. When the front, back and divisions are fixed, screws should be driven through the top shelf into the front and back. A piece of plywood is used to cover the back of the cabinet. It is rebated into the sides and top shelf, and is nailed

to the sides and shelves.

THE TOP (F) is 1 ft. 9 $\frac{1}{2}$ in. long by 1 ft. 1 $\frac{1}{2}$ in. wide, strengthened by screwing fillets 1 $\frac{1}{2}$ in. wide under the ends and front, the edges of the top and fillets being moulded to the shape shown at Fig. 6. The top could be hinged to the back of the tray, or, if desired, a strip 3 in. wide could be cut from the back edge, the strip being fixed and the top hinged to it. The strip should be glued and pinned to the back of the tray, and screws driven through the (Continued on page 344).

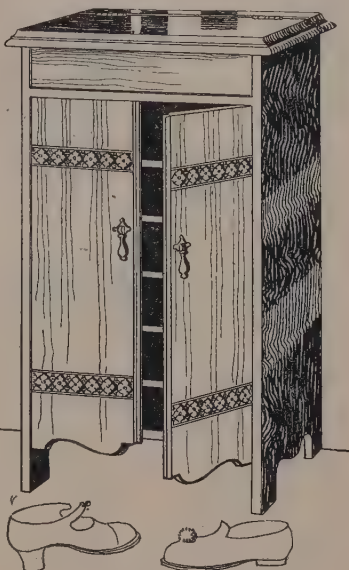
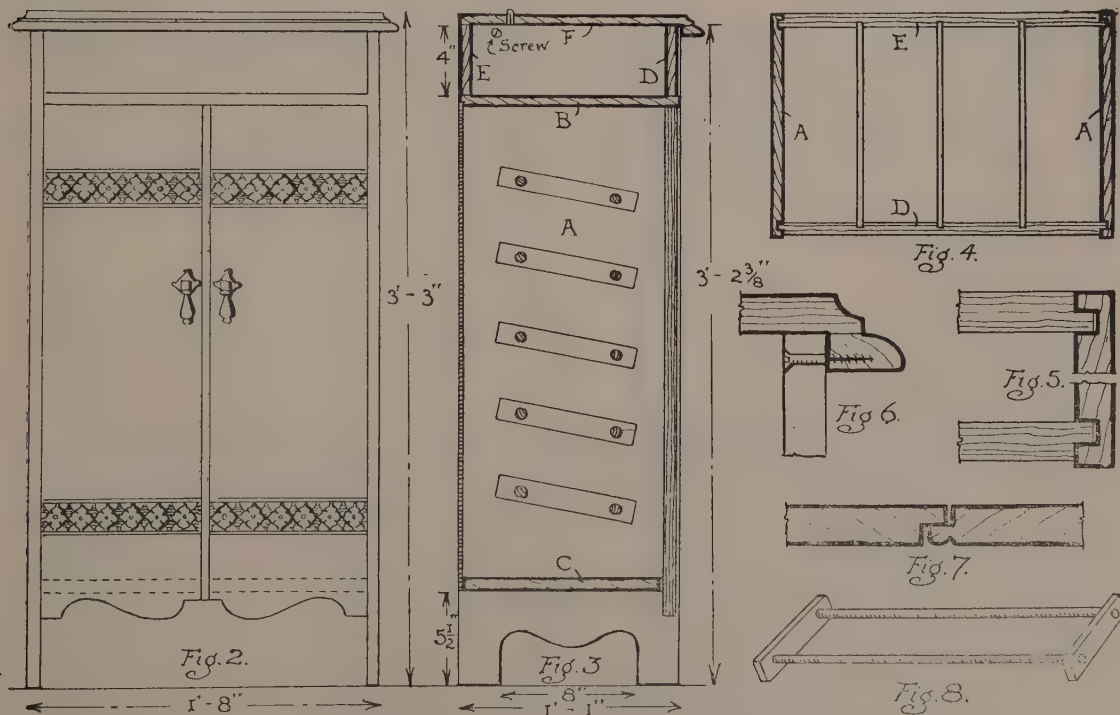


FIG. 1.—SHOE CABINET.



FIGS. 2 TO 8.—DETAILS OF BOOT AND SHOE CABINET

CHAIRS FOR THE LIVING ROOM

THESE chairs, while suitable for any living room, may be considered in conjunction with the bungalow sideboard published in August and the oval dining table which appeared in September. Four small chairs and two carvers usually provide sufficient seating accommodation in a small dining room. The chairs have been carefully studied as to size and proportion and the over all sizes should be adhered to. Oak is the most desirable wood, and should be of good texture and straight grain.

THE FRONT LEGS of both chairs (A and M) are square with the inside edge bevelled off, stopping the bevel just below the seat rail (Fig. 8). The back legs should be cut one from the other out of wide pieces of timber, thereby saving stuff. The plotting out of the arm and stump (Fig. 11) suggests the shape and *not* the marking of the timber. To avoid waste of wood make thin plywood or cardboard templates of the back legs, arm and stump, and plan out on the available

wood before cutting.

THE FRONT SEAT RAILS (F and Q) and back rails (G and R) are tenoned to the legs. The side rails (H and S) are dowelled, thereby rigidly pinning the tenons of the front and back rails. Use three stout $\frac{3}{4}$ in. dowels to each joint. It will be noticed that the side rail joints are splayed, and it is advisable to make a full size plan of each seat on paper in order to get the exact angle for cutting. The rails are not rebated for the drop-in seat. The outside edges of the rails should be nicely rounded and the loose seats will rest upon corner braces.

All four corners of the seat are braced, the braces being set down far

enough to allow the loose seat frame to drop in flush. All braces should fit snugly and be well glued and screwed.

THE TOP BACK RAILS (D and O) are dowelled down to the legs, one dowel to each joint. The back stay rails are tenoned. Both rails are grooved to take the upright banisters

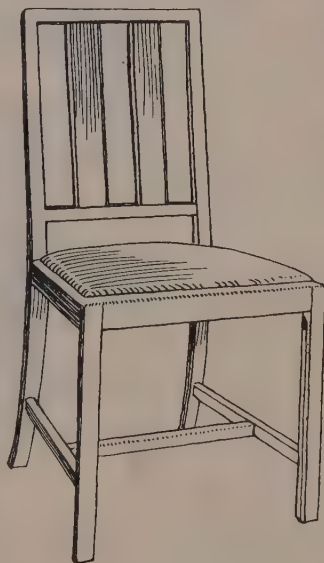


FIG. 1.—THE SINGLE CHAIR.

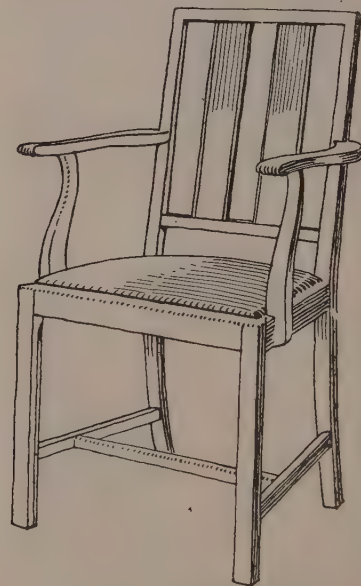


FIG. 2.—THE ARM CHAIR.

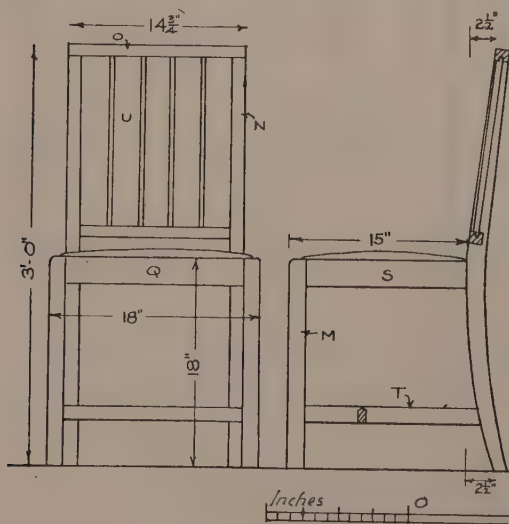


FIG. 3.—ELEVATIONS OF SINGLE CHAIR.

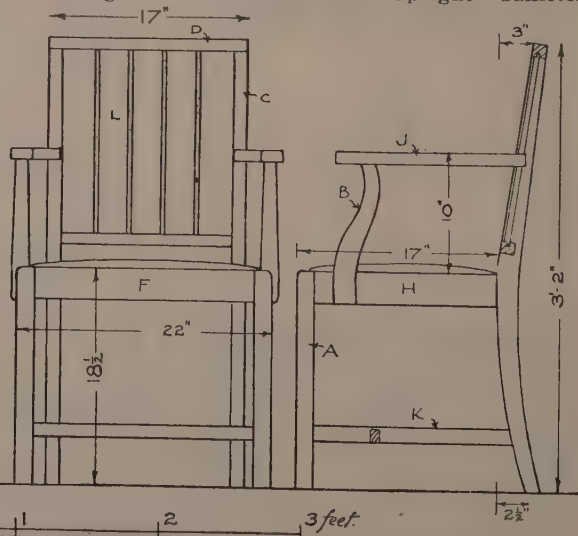


FIG. 4.—ELEVATIONS OF ARM CHAIR.

(L and U), the grooves being about $\frac{1}{4}$ in. deep. The banister edges are softened off or moulded as in Fig. 10. The cross stretcher is stub tenoned to the side stretchers (K and T).

First assemble the backs and fronts of each chair. When dry and set connect up with the side rails and stretchers. To obtain

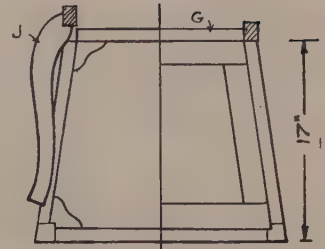
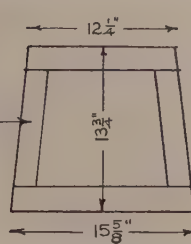
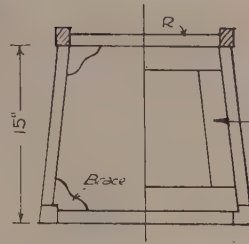


FIG. 5.—PLAN AT SEAT. FIG. 6.—SEAT FRAME. FIG. 7.—PLAN: ARM CHAIR.

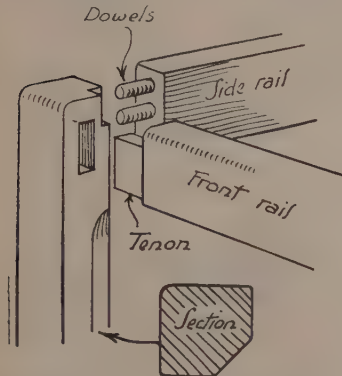


FIG. 8.—SEAT CONSTRUCTION.

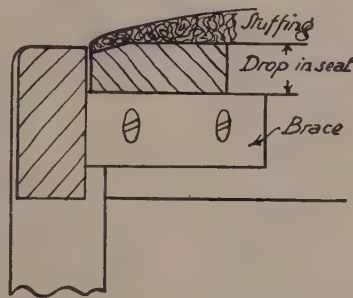


FIG. 9.—SECTION AT SEAT.

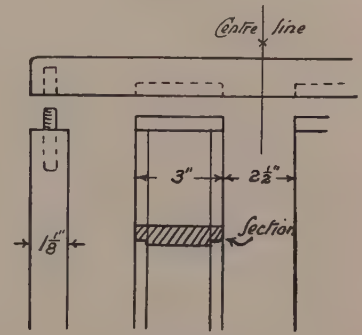


FIG. 10.—DETAILS OF BACK.

the position of dowels drive in panel pins or veneer pins into the rails where the dowels should be and cut, leaving the pins projecting about $\frac{1}{4}$ in. If the rails are now pressed into position on the legs the corresponding position of the dowels and centre for boring will be indented.

THE ARMS AND STUMPS should be cut to shape and the edges spokeshaved and well cleaned. The edges also should be well rounded. The upright shape is tenoned to the arm. The arm is dowelled to the back leg and the stump halved to the seat rail and fixed by screwing, the screw heads being sunk and the holes pelleted.

THE DROP-IN SEATS (Fig. 6) may be half lapped or dowelled together. Allow a $\frac{1}{8}$ in. clearance all round when dropped in. Bevel off sharp edge all round.

SMALL CHAIR.

M	2 Front legs	...	1	6	1 1/2	1 1/2
N	1 For 2 back legs	...	2	11	6	1 1/2
O	1 Top rail	...	1	2 1/2	1 1/2	1 1/2
P	1 Stay rail	...	1	2 1/2	1 1/2	1 1/2
Q	1 Front seat rail	...	1	5	2 1/2	1 1/2
R	1 Back ditto	...	1	2 1/2	2 1/2	1 1/2
S	2 Side ditto	...	1	1 1/2	2 1/2	1 1/2
	1 For loose seat	...	1	4	2	2 1/2
	1 Ditto	...	1	1	2	2 1/2
	2 Ditto	...	1	2	2	2 1/2
T	3 Stretchers	...	1	5	1 1/2	2 1/2
U	2 Banisters	...	1	3 1/2	3	2 1/2

All sizes are net.

(423)

CUTTING LISTS:— ARM CHAIR.

A	2 Front legs	...	1	6 1/2	1 1/2	1 1/2
B	1 For 2 stumps	...	1	3 1/2	5	1 1/2
C	1 For 2 back legs	...	3	1	6 1/2	1 1/2
D	1 Top rail	...	1	5	1 1/2	1 1/2
E	1 Stay rail	...	1	4 1/2	1 1/2	1 1/2
F	1 Front seat rail	...	1	9	2 1/2	1 1/2
G	1 Back ditto	...	1	4 1/2	2 1/2	1 1/2
H	2 Side ditto	...	1	3 1/2	2 1/2	1 1/2
J	1 For 2 arms	...	1	6 1/2	4 1/2	1
	1 For loose seat	...	1	8	2	2 1/2
	1 Ditto	...	1	3 1/2	2	2 1/2
	2 Ditto	...	1	4 1/2	2	2 1/2
K	3 Stretchers	...	1	8	1 1/2	2 1/2
L	2 Banisters	...	1	4 1/2	3 1/2	2 1/2

THE DECEMBER WOODWORKER

In addition to special Christmas features for December, we have in readiness a new design for a pedestal gramophone, a living room settee convertible into a bedstead, a 4 ft. 6 in. grandmother clock, a display cabinet, a fireside arm chair, and a new sideboard of compact design. In response, also, to numerous requests we have in preparation a fully illustrated article on the construction of a bee hive. Next month we hope to announce the first of a series of competitions of a pictorial character interesting to all woodworkers. Please remember that, during the winter months, there is invariably an increased demand for copies of THE WOODWORKER; remember to place an order with your local newsagent.

THE QUESTION BOX

QUESTIONS only of general interest can be answered in these columns. Readers will kindly note:—(1) Detailed replies or sketches cannot under any circumstances be sent by post; but, as the Editor may require further information, a stamped addressed envelope should be enclosed. (2) Full particulars of what is required should be clearly stated, and (if possible) a rough sketch with over-all sizes enclosed. (3) Questions of purely personal interest cannot be dealt with in these columns.

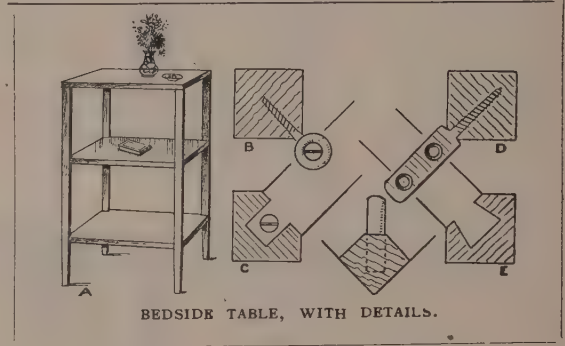
NOTE.—With each Query must be sent a Coupon (see foot of page iv. of cover). All queries to be addressed: Editor, THE WOODWORKER, Montague House, Russell Square, London, W.C.1.

Bedside Table

H. J. (Garston) asks for help with the design for a bedside table.

REPLY.—The type of bedside table shown in your sketch is of slight construction throughout, but looks neat when made up and is very suitable for the use of mahogany. Dimensions, as in A, might be 18 in. by 12 in. top, with a height of 2 ft. 6 in. for the purpose indicated. The legs may be of $1\frac{1}{4}$ in. by $1\frac{1}{4}$ in. material with the lower 5 in. or less tapered to $\frac{3}{4}$ in. by $\frac{3}{4}$ in. and the top, if desired, finished with a stub-tenon on end to enter the table top. This table top may be of $\frac{3}{8}$ in. stuff, or a full $\frac{1}{2}$ in. net in thickness, with a notch cut on the under side in the angles to receive the stub-tenon so that all is flush.

Another method of attaching the top instead of by stub-tenon on leg is to enter a length of dowel through the table top into the leg which may be wedged, or it would be possible to enter a screw countersunk sufficiently from above to allow of the hole of entry being stopped. The shelves below may be fitted in several ways, the edges throughout being flush with the faces of legs. A simple method of attachment after the shelf has been notched round the legs is to enter a screw eye into the inner angle of leg for screwing up from under as indicated at B. Instead of the screw eye, screw plates are procurable for entry in the same manner, these being holed for two screws as in the sketch at D. Where the shelf is jointed to leg, it may be notched to fit round it in addition to having a dowel entered as a further hold as shown. In some cases the construction is stiffened by thin rails under top, these being halved to cross in centre with the extremities cut into top of leg, as at C, and screwed. A neater method is to dovetail these cross rails into position (E), which will also afford a careful screwing in fixing top. The edges of shelves are finished square, but it would be possible to work a small ovolo here. (401)



BEDSIDE TABLE, WITH DETAILS.

Painting over Creosote

F. W. D. (Essex) built a beach hut last March and treated the outside with a coat of creosote. The sea air having bleached the wood, he now wishes to paint over the creosote.

REPLY.—Considering that the creosote was used some months ago and that it appears to be bleached out, we do not think you will have any trouble if you paint the job with a paint having a basis of genuine white lead and linseed oil. Use a grey or a greyish brown for the work and not a green. If you have any doubt about the creosote striking through, you can arrest this by giving the work a coat of shellac knotting previous to the painting. Cheap paints usually contain a fair percentage of barytes and fish oil, and you should avoid this class of paint for your particular purpose. See that your local painter mixes the paint from the white lead drum and the linseed oil barrel and then you will obtain what is required. (410)

Stripping Polish

A.B. (King's Cross) wishes to strip the polish of a stained mahogany job which he has had the misfortune to spoil by patchy staining.

REPLY.—Strong liquid ammonia applied with a swab or old bristle brush will soften the body of polish to such an extent that it can be scraped away like jelly. The work should then be washed down with a rag dipped frequently in methylated spirits. This rag may be fed with powdered pumice stone powder to clear off the surface any polish which has adhered to it. The work will, when dry, have to be re-glass-papered, and we should then advise you to re-stain with Johnson's mahogany wood dye which will penetrate through your patchy water stain and even up the work. When the wood dye has dried overnight fasten it with a coat of brush polish, after which proceed to fill-in (if it requires it), body-up and stiffen-up with a suitably tinted polish. Another method of stripping off old polish is to take $\frac{1}{4}$ lb. borax, $\frac{1}{4}$ in. rock ammonia, $\frac{1}{4}$ lb. common soft soap, and $\frac{1}{4}$ lb. washing soda. Dissolve in hot water. (370)

Protecting the Inlay

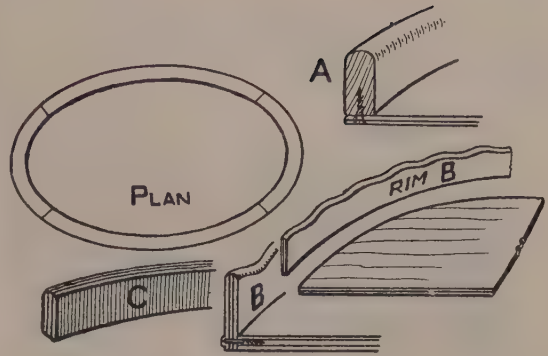
J. J. (Burnley) has to polish a mahogany job inlaid with satinwood, and wishes to know how to fill in the work with mahogany paste filler without causing any discolouration of inlay.

REPLY.—The old fashioned method of treating inlaid work was to dispense with a wood filler, sealing up the pores of the wood with coat after coat of polish, which was rubbed down flat between each coat. The modern method is to coat in all the inlay with two or three applications of cellulose lacquer and allow it to thoroughly dry. A filler made with either turpentine or with water will not strike through the cellulose coating. Another method is to cover the inlay with two or three coats of thick polish and then stick strips of drawing paper over the bandings, using shellac varnish as an adhesive. This shellac varnished paper will prevent the colour of the mahogany filler from striking into the inlay. When the filler has set the strips of paper may be removed with a small pad of cotton wadding which has been moistened with methylated spirits. The surface is then eased down with fine glass-paper and the polishing is proceeded with. (412)

Oval Tray Rims*

A. N. (Kirkcaldy) has had occasion to cut out some oval shapes for mirrors and, having several ovals of $\frac{1}{2}$ in. plywood left on his hands, wishes to work them up into tea trays. He asks how to plant a moulding or rim round the edges.

REPLY.—You will have to build up your moulding in four pieces, jointing them as shown in plan. Glue them on to the plywood base and screw them from the underside. The most satisfactory method is to select a simple rounded edged moulding, as at A, and then send the strips to be steamed and bent to shape at a wheelwright's or chair factory where they have a steam bending plant. This method only necessitates one diagonal joint, as in the circular rim of a bentwood shop chair. The method B is adopted for fancy wavy edged butler's and serving trays, and in this example the rims are made up of three to six thicknesses of saw-cut veneer. At C is shown the cheapest and simplest method the home worker can adopt, and that is to cut the rims out of 5 mm. plywood, taking care to select the wood with the two outside layers running vertically. If cut in this manner the plywood will bend around a shaping, provided it be slightly damped and warmed over the jet of a gas stove. To make elliptical rims is always a costly job and if you have not access to a steam chest to bend the wood it will pay you to use up your plywood in some other manner. (316)



METHOD OF MAKING RIMS FOR OVAL TRAYS.

mould is separately put on by mitreing round. Presumably the latter is the case as you propose to remove it. This may not be altogether advisable for a finished effect, since it will be serviceable in position to mask the joint between your own cabinet and the base portion it is desired to make. As it appears to be rather a bold section you might care to reduce it by planing away the lower member to about one half, or alternatively you might replace it by a section having not more than $\frac{1}{4}$ in. projection. As you wish the base to finish 2 ft. $1\frac{1}{4}$ in. high and to be of the lightest construction, you had better use $1\frac{1}{2}$ in. by 1 in. (face) stuff for the legs, which can be tapered to sufficient nearness at bottom to appear square. The front pair of legs can have a rail $1\frac{1}{2}$ in. by 1 in. either dovetailed, tenoned or doweled into them at top, and this rail might be relieved if desired by mounting on it a length of flute, Greek key or flute and patera detail, which would lighten the effect of the whole thing. A similar rail should be tenoned into position at bottom, but kept plain. The same construction applies to the back pair of legs and rails, the two framings being next connected by rails of similar width, top and bottom, to be tenoned and pegged into position or doweled, rails and legs having previously been grooved to receive the panelling of plywood desired, which had best be of 5 mm. thickness.

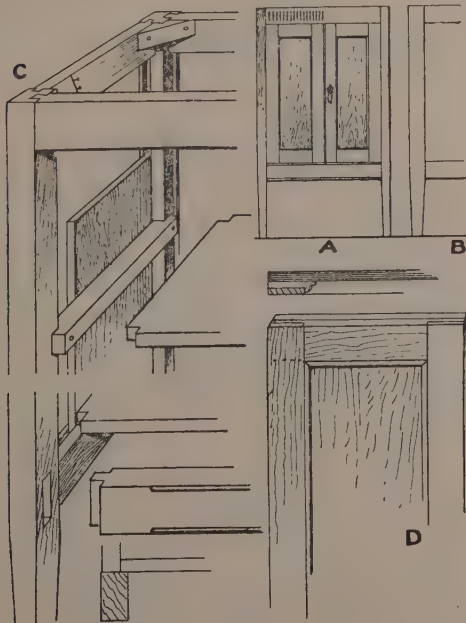
The back panelling can be grooved into position in a similar manner, or a rebate can be formed by means of lengths of bead mitred up and panel-pinned in position for the plywood to bed against and be further held by lengths of slip on the inner side. The pair of front doors can be made up of $1\frac{1}{2}$ in. by $\frac{3}{4}$ in. stiles and rails, mortised and tenoned together or doweled, with panels of plywood grooved in or rebated in and beaded from the back; or in an inferior manner, the lengths of stuff to form the framework for doors can be of $\frac{3}{4}$ in. net thickness, halved together at angles and backed with full-sized pieces of 5 mm. plywood, screwed on in addition to glueing, which would make a sufficiently firm door for your purpose. It will be best to fit these cupboards with a couple of shelves supported on fillets screwed to the leg uprights.

A detailed sketch, which together with the foregoing should make matters clear to you is seen at C, a front elevation being given at A, and a suggestion for the end treatment at B. A sketch showing $\frac{3}{4}$ in. by $1\frac{1}{2}$ in. stiles and rails halved together and mounted on plywood and screwed is offered at D, together with a section showing an ovolo mould dropped into the panel opening. (319)

Pedestal Gramophone Cabinet

J. O. H. (Newcastle-on-Tyne) asks how to convert his table cabinet gramophone into a pedestal type.

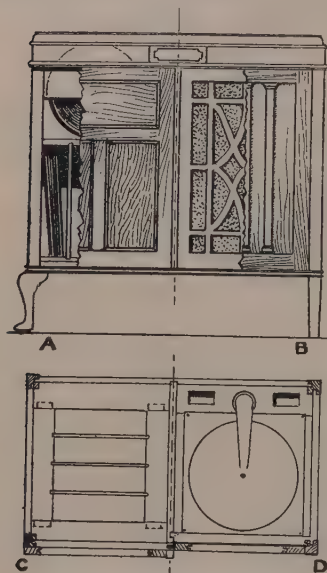
REPLY.—Your rough sketches explain fairly clearly the result you desire, but we are not quite sure whether the base mould of your gramophone cabinet has a solid bottom screwed into position, or whether the base



DETAILS OF PEDESTAL GRAMOPHONE CABINET.

Gramophone Cabinet

D. B. M. (Glasgow) sends the sketch of a gramophone cabinet he wishes to make.



GRAMOPHONE CABINET.

about 6 in. inside, and, when making up the well, for the turntable on tone arm, the exact height varying slightly according to the make of fitting in use. The well in the present case will be sunk to a depth that will bring it below the line of the top of door, the part being screened by a fret of which one half only is shown at B. This fret can be separately cut and fitted between a light framed panelling of $\frac{1}{2}$ in. by $\frac{1}{4}$ in. flat halved together, the backing being usually of a fine metal gauze. This fret will be enclosed by one of a pair of doors, the design as indicated at B showing panel 2 in. by $\frac{3}{4}$ in. stiles and rails mortised and tenoned together with plywood panel upon which are mounted three uprights of $\frac{3}{4}$ in. by $\frac{1}{2}$ in. flat, which may be finished top and bottom with neat moulded detail. The effect here would be unusual and is offered as an alternative to the three panel door, a sketch of which is seen at A. As the plan (C) shows, this portion has the well fitted to receive 10 in. records, a row of 12 in. records being provided with three divisions between, below.

The divisions as on plan can be of $\frac{3}{4}$ in. thickness and are sometimes slightly shaped for relief and for finger hold. It is possible to replace these divisions by lengths of millboard which can be covered with green baize glued on and fitted sufficiently frequently by glueing into slots each end, so that a division comes between every six records or so.

The sketch at A indicates the top row of 10 in. records as bedding upon a shelf with a $3\frac{1}{2}$ in. rail fitted between inner and outer ends, and at a depth that will allow the door to bed upon it when shut. Carcase ends can be of $\frac{3}{4}$ in. thickness grooved and doweled to legs or, if cut with the grain to run horizontally, can be tenoned into position.

The top of carcase is finished with the usual framed capping of $\frac{3}{4}$ in. thickness, mitred and tongued up, and of a width to finish flush with the inner faces of legs.

REPLY.—Our elevation is worked out upon the lines of the rough sketch you enclose, dimensions being, as desired, 2 ft. 8 in. long, 2 ft. 9 in. high, and depth, back to front, 1 ft. 6 in. Instead of the plain tapered legs you show we think you would obtain a more effective result by fitting cabriole legs, which in our sketch are between 6 in. and 7 in. high. In making up the lid, which opens together with the frieze framing, allowance should be made for a clear height of

The actual height of lid shown is about $3\frac{1}{2}$ in., made up of a 2 in. by $\frac{3}{4}$ in. framing and capped by a $1\frac{1}{2}$ in. section mould into which a top of $\frac{3}{4}$ in. thickness can be rebated flush and glued under, with lengths of $\frac{3}{4}$ in. hollow section mould neatly jointed in the angles. The frieze is relieved by a panel of 3-ply showing about 7 in. long and incised in the manner indicated. The back can be framed up of 2 in. by $\frac{3}{4}$ in. stiles and rails with two or four vertical panels of plywood grooved in. We are not quite sure whether you require the doors to be hinged to the outsides of legs or to close between legs and inner division; both methods are given in the elevations A and B. (399)

Renovating Pollard Ash Suite

L. E. J. (Eccles) has a bedroom suite of pollard ash that had an excellent grain effect similar to walnut, but it has become bleached through age and exposure to the sun, and he asks how to stain and polish it to a walnut colour.

REPLY.—We should advise you to repolish the work to its original ash colour by a judicious mixture of white and orange polish, which will bring back the slight yellowish tinge which has been lost through bleaching. If you insist, however, on wishing to stain it to a fashionable walnut shade you will have thoroughly to strip away all the old polish with a varnish remover such as Johnson's electric stripper, and then glasspaper smooth. The next operation would be to stain the work with a walnut spirit stain. When dry, say, two days afterwards, fix the stain by giving the suite a brush coat of orange coloured polish and allow this to dry for another day. Then fill in the work with a walnut coloured paste wood filler and allow another two days for the filler to harden. Ease down with fine No. 1 or No. 0 glasspaper to remove dust specks or unevenness of filling-in paste, and proceed to polish the suite in the same manner as though you were treating black or Italian walnut wood. To do the job thoroughly will be costly on account of the labour involved. (395)

Polishing Mahogany

A. H. (Enfield Wash) sends a small sample of mahogany and asks how to obliterate the white specks which show in the grain of the wood.

REPLY.—Your sample appears to be an old piece of Spanish mahogany which you have re-planed up, and it shows a white or chalky deposit in the grain. This white deposit is one of the characteristics of real mahogany *Suietenia Mahagoni* imported from Cuba, and it is not found in many of the baywoods. If you rub over this Spanish mahogany with red oil and then fill in and polish, the white deposit will not show. It is seldom necessary to stain this real old mahogany with bichromate of potash, as the old wood is usually dark enough. Red oil is made by bruising two pennyworth of alkanut root, allowing it to steep for two days in enough raw linseed oil to cover it. Your new baywood will have to be stained with the bichromate of potash stain, as you surmise, and the newer woods will have to be coloured up with a coloured polish to match the old wood. To colour your polish, strain it through a doubled piece of fine muslin which contains a trace of bismark brown powder and the slightest trace of aniline black. (394)

Bureau Bookcase

E. T. (Chesterfield) sends the sketch of a combined bureau-bookcase he wishes to make and asks for help over the construction.

REPLY.—The idea roughly sketched with your letter is a very neat arrangement and might be worked out in accordance with our suggestions. You will note that alternatives are offered for the leaded glass doors, and also that, by raising the whole thing a matter of 3 ins. extra cabriole shaped feet could be substituted for the ball feet with considerable benefit to the appearance. Suitable dimensions for such an article would be: length, 4 ft.; height, 3 ft. 9 in. to 4 ft.; and depth, back to front over all, 10 in. to 12 in. The actual net space allowed clear for the secretaire portion is 18 in., with a height of 13½ in. clear, which with a writing table height of 2 ft. 6 ins. is all that can fairly be allowed in an article 3 ft. 9 in. high as shown. Immediately under the fall flap a pull-out slide is provided which will give support to the flap when down. Two 6 in. drawers are included below.

In constructing, the inner and outer ends should be of ¾ in. net thickness, which is advisable for counteracting the dead weight of books, although a net ½ in. thickness is often used nowadays. The carcass top shown with a receding mould and narrow frieze will be worked out to the enlarged detail at C, this showing a ¾ in. section for the mould with a ½ in. bead added to the ¾ in. thickness of the top rail, the bead being mitred after notching to continue round ends. The inner ends can be tenoned right through top rails and will be further held by the rails above and below slide which can be slot-dovetailed into position, the upper one being about 7 in. wide in order to afford a ledge for the stationery cabinet to bed upon after being separately made and entered. The fall flap will be made up of 2 in. by ¾ in. stiles and rails, with a ¾ in. or 5 mm. plywood panel grooved or rebated in, and an applied panel with hollow corners of 3 mm. plywood glued and needle-pointed on.

The slide may be made up of stuff with the grain

running front to back to be clamped each end with 1½ in. clamps tongued on, and the front edge may further be faced with a D-shaped slip sufficiently wide to form a finishing stop for the slide, which can be fitted with either brass knobs or neat drop handles. Drawer fronts should be of ¾ in. The carcass back can be framed up of 4 in. by ¾ in. stiles and rails, or a ¾ in. framing at its lightest can be used to form a six panelled back all in one or in three separate parts, rebated and screwed into position. The bookcase doors can be framed up of 2 in. by ¾ in. stiles and rails, mortised and tenoned together and rebated to receive the leaded lights, the framings being best sent to the glass factor for fitting. An enlarged section is given of the slide fitting (D), this showing a slip 1 in. by ¾ in. thick, inserted into position front to back on the inner ends and grooved to receive a tongue worked on the edges of the slide itself.

The base mould may make up a 1½ in. section, a ¾ in. section being mitred round ends and along the carcass bottom (E) and an additional ¾ in. by 3 in. flat added under.

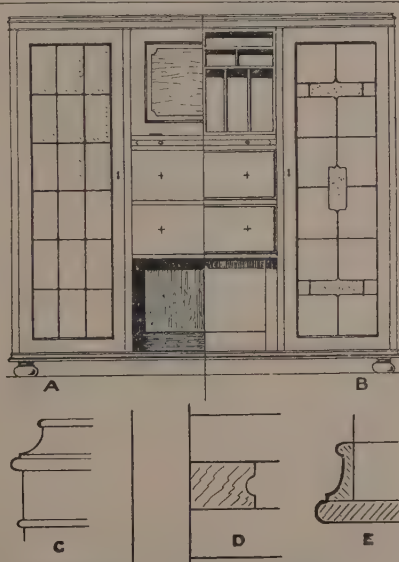
It might be added that, in making up the leaded lights, choice is available between ordinary flat glass and separate bent panes, whilst some prefer to introduce an occasional pane with "bottle bottom" as relief. Alternatively B shows a door of plain leaded glass with muffled glass panels introduced, which gives quite an effective result. The whole thing will be stiffened if at least one bookshelf is dovetail-grooved into position in ends. (400)

A Jacobean Finish

S. E. E. (Essex) wishes to stain an oak fireside stool to obtain an antique Jacobean effect.

REPLY.—Obtain two pennyworth of vandyke crystal water stain. Dissolve in warm water, adding a pinch of household washing soda. Stain the work freely with this water stain and, whilst it is wet, glasspaper down the grain with a wet-dry glasspaper of "fine two" grade. A wet-dry glasspaper is waterproof and is made specially for rubbing down damp or wet work. After rubbing down smooth and at the same time rubbing the stain into the stool, leave it to dry for two days. On taking up the work use some "fine two" glasspaper and rub through the stain on the high parts of the stool so as to bring up the light for the imitation worn patches. Then give the stool a coat of painter's shellac knotting to fasten the stain and seal up the pores. When dry, smooth up with No. 1 grade glasspaper and all is ready for using a wax polish.

Shred English beeswax into a jam jar, pouring over it just sufficient pure turpentine to cover the wax. Take a pan half full of hot water and place the jar containing the wax and turpentine into the pan, glue-kettle fashion. Do not put the pan on the gas or near a light or fire. If the water is inclined to become cold before the wax and turpentine are amalgamated by constant stirring, take the jar out of the pan and place the pan on the fire again: then replace the jar. Mix the wax and turpentine to the consistency of butter, adding more wax or more turpentine as may be required. When the proper consistency is reached the wax may be coloured to the Jacobean stain by adding a few drops of vandyke brown which has been ground in turpentine. This can be bought at your local painter's. Rub the wax well into the oak and then wipe and burnish with friction by see-sawing strips of rag around the legs. Repeat the waxing, say, once a week, for at least six times, and a good dull gloss will result. (411)



DESIGN FOR A BUREAU BOOKCASE.

ORNAMENTAL BIRD BATH

A BIRD bath may make a very attractive feature in a garden, and our suggestion shows one so mounted that roses may be trained up it if so desired. Fig. 1 gives the idea, the sketch being shown slightly out of ordinary perspective the better to make clear the following details. The bird bath is mounted in an ornamental framing and built upon a central pole with additional separate lattice framings, fixed diagonally for support and also for the training of a clematis or climbing rose. In position in the centre of crossing paths or on a lawn, the idea should bid fair to rival a sundial in attractiveness and at very moderate cost.

Taking the parts in detail, size for the bath itself may be 14 ins. diameter, and for the purpose in view an ordinary shallow dish of enamelled ware would serve. This will be set in a frame formed by two pieces (A) cut from stuff $\frac{1}{2}$ in. thick and to finish about $4\frac{1}{2}$ ins. wide by about 2 ft. long. The two pieces (B) of equal thickness may finish $3\frac{1}{2}$ in. wide by 20 in. long, which will include good allowance for jointing either by halving together or mortising as preferred.

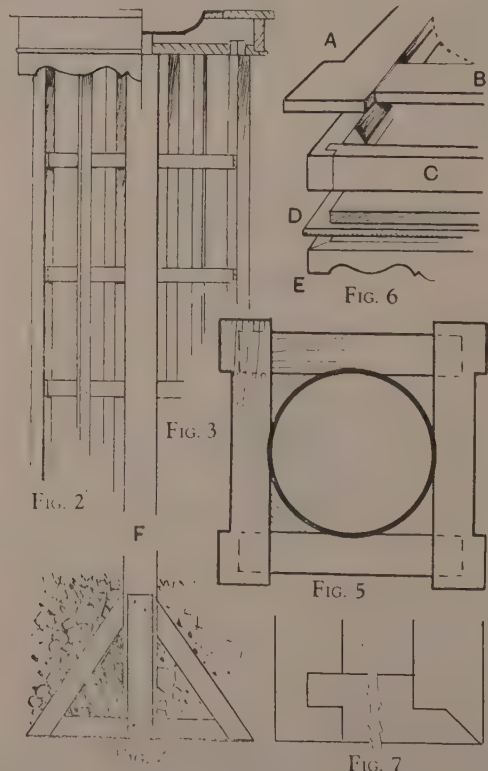
The actual finished shape of the frame will work out on plan as at Fig. 5, shaped pieces being grooved into the inner angles to form ledges so that the circular dish may be supported in position all round. Under this frame a square box (C) made up of 3 in. by $\frac{1}{4}$ in. sides can be jointed

and nailed together, and the angles further supported if desired by triangular blocks in the inner angles, as Fig. 6 shows. A bottom (D) of equal thickness may be rebated to fit within the frame to which it can be nailed or screwed. This will complete the mount but, if desired, an additional embellishment will be derived by fixing a shaped and mitred framing cut from $\frac{3}{4}$ in. thickness, width to finish $2\frac{1}{2}$ in. in centre on the lines of E (Fig. 6), this framing being simply nailed into position.

A part elevation and section of lattice and bath are given at Figs. 2 and 3, and from this it will be noted that the central pole (F) is cut with a tenon to pass through bottom (D) and be of sufficient length for the dish to bed upon when in position. This centre support may consist of a 3 in. by 3 in. pole of the required length, 6 ft., to which an additional 12 ins. at least should be allowed for entering into the ground. The pole is shown straight for its full length, but the corners may be chamfered sufficiently wide to allow the diagonal framings an easy fixing. It might be added that a good method of fixing the pole, especially in black soil, is to nail a piece of stout wood on the bottom cross-wise, these pieces being cut with equal projection, with the ends bevelled so that four additional struts may be nailed to them in the manner indicated by the elevation at Fig. 4. The hole dug will therefore have to be



FIG. 1.—ORNAMENTAL BIRD BATH. HEIGHT 6 FT.
FIGS. 2, 3 AND 4.—PART ELEVATIONS. FIG. 5.—
PLAN. FIGS. 6 AND 7. DETAILS OF
CONSTRUCTION.



sufficiently big for this part to enter, when it may be filled with brick rubbish or hard core of any kind rammed well home. It will, of course, add to the life of the post if the portion to be buried is well tarred.

The additional trellis to the post will, by standing out diagonally, give extra good support to the bath mount and can be made up of four outer uprights, $1\frac{1}{4}$ in. by $1\frac{1}{4}$ in., or $1\frac{1}{2}$ in. by 1 in. would serve, these being cut with a tenon to enter the bottom (D), as in section Fig. 3, and of a length to enter the ground and bed upon the hard core already rammed. Similar lengths of posts will form the other sides of lattice work, these being, however, cut to finish about 1 ft. 9 ins. above ground and to be nailed through to chamfers on main post. The squared trellis can then be made up of ordinary builder's lath spaced into squares about 9 ins. high, the bottom rail of each framing being of slating batten or 2 in. by 1 in. stuff plain nailed or screwed on as a further stiffening. The laths may be nailed together with 1 in. wire nails, each nail being clenched.

The cheapest method of finishing would be to soak well with creosote, but, for those who do not mind extra cost in this direction, we suggest that the main post should be painted white and also the framed surround for the bath, the remaining portions making up the four way screen being painted ordinary middle or brunswick green, or in emerald green, both of which colours appear at their best in the garden.

In order to emphasise the decorative side of the idea, a bricked or cemented surround with corner posts would at slight expense assist in forming a special flower bed in a garden or on a lawn, whilst again by allowing a 12 in. height for these corner posts, assistance would be obtained in overcoming any difficulty of reaching the bath itself when necessary to replenish it with water. It would indeed be possible to run a length of pipe or tube up the post fitted with a tap in convenient position so that ordinary water pressure would enable the bath to be filled from below. Alternative joints for putting together the bath framing (C) are given at Fig. 7. (403)

THE LACQUER FINISH ON WOOD

THE true Oriental lacquer work is too complex and costly a thing to be successfully reproduced in this country, requiring as it does many years of experience and much patience and care to ensure success. Modern European commercial lacquer consists of paint with a finishing coat of lac varnish. Some use white spirit varnish for finishing. Careful imitations are extremely good and pleasing to the eye but, of course, lack the hardness and resistance to acids and heat possessed by true Oriental lacquer. The first essential is a well prepared flat surface. Any plane marks or corrugations in soft wood will show badly on the finished article. Also any dirt or grease must be removed. Cleanliness is essential throughout.

PRIMING.—Dissolve $1\frac{1}{2}$ lbs. of resin lac into $\frac{1}{2}$ gallon methylated industrial spirits. Stir frequently while dissolving. Add a little camphor, say, $1\frac{1}{2}$ ozs. In selecting the colour desired gas black is best. Vermilion is a bright red and expensive. Indian red gives an excellent tone, being duller. Other colours are emerald green and celestial blue. Buy these colours fine and dry and grind up into a paste with the above mixture, then add and strain through muslin. The thickness of the mixture should be a guide to the quantity of colour to add. The mixture should have body without leaving brush marks on application. Test out on a scrap piece of wood, then apply evenly, smoothing off with an almost dry brush.

FILLING.—Holes and cracks should be filled up when the priming is dry by a mixture of whiting and undercoating. For the undercoating use 14 ozs. of gilder's whiting and $\frac{1}{2}$ oz. gelatine boiled with 1 pint of water, stirring well. Apply when warm in a similar way to the priming. This fills up the grain of the wood. When properly dry, well rub down with No. 0 glasspaper.

LACQUERING THE GROUND.—Use a varnishing brush and apply the lac with swift even strokes from left to right, using a full brush. Runs on the edges can be wiped off afterwards. Again rub down with No. 0 glasspaper, finishing with flour paper, taking care not to rub through the coat. Another application may be necessary. Polish with a piece of felt damped and dabbed on fine pumice powder, rubbing the surface firmly but gently with a circular motion. Afterwards wash off with water.

THE DECORATION is entirely an individual matter. Gold is applied by painting in with gold size coloured with a little yellow paint and allowed to get tacky. Gold leaf is then pressed on gently by rubbing the back of the leaf with cotton wool. Alternatively gold powder is dusted on. Bronze powders in a variety of shades can be obtained from most oil colour stores.

FINISHING.—Use clear lac varnish, applying and allowing to dry for two or three days in a warm dry room free from all floating dust. (405)

A VERY FINE photograph of a beech wood appears in the November issue of *Pictorial Education*, together with other beautiful illustrations in photogravure. *Pictorial Education* can

be obtained from all newsagents at 1s. A feature of this magazine is that illustrations are printed only on one side of the paper. All are in superb photogravure.

COMPACT SIDEBOARD

SIZE, 4 FT. OR 4 FT. 6 INS. AS PREFERRED

MODERN design often baffles the home worker. The severe lines, frequently devoid of moulding or applied ornament, on which many pieces are built may appeal strongly to him; but, just because the effect is obtained either by the use of carefully schemed veneers, or by a perfection of finish which is beyond his powers, he is constrained to admire without attempting to reproduce.

In the design for a compact sideboard given here it is the interests of the home worker that have been primarily considered. With the use of figured veneers the piece might be carried out in mahogany, walnut, oak, or other wood if so desired; but it is designed deliberately for the use of solid wood—preferably oak, which may be finished in any way preferred.

By way of relief (if felt necessary) applied frets are added. These are of very simple design; although here, again, if a fretsaw is not at hand, suitable ready-cut frets may be purchased at an almost nominal cost from any dealer in woodworking sundries.

The height to table top shows 2 ft. 11 in., the length being 4 ft. 0 in. and the depth back to front 18 in. over carcase. The sideboard comprises two cupboards and a set of four graduated drawers, in addition to which all is raised well clear of the ground for sweeping under. Note

that the middle drawer section is very slightly recessed—a relief that is pleasing to the eye.

LEGS.—In getting out the parts, Fig. 6 will be found serviceable for reference, as indicating a method of construction. The sideboard is designed to take eight legs (A), these being of stock pattern and tapered below for about 7 in. of their length. Such legs may be purchased from the sundriesman. They finish $1\frac{1}{2}$ in. by $1\frac{1}{2}$ in. by 36 in. long when

purchased, and will therefore require cutting down to suit a table height of 2 ft. 11 in. The legs will require mortising and grooving for joints as these occur, and will also be dovetail-slotted above for the upper rails to enter.

RAILS.—In making up the pedestal cupboards at



FIG. 1.—FOUR FOOT SIDEBOARD WITH TWO CUPBOARDS AND SET OF FOUR DRAWERS. MAY ALSO BE MADE TO 4 FT. 6 IN.

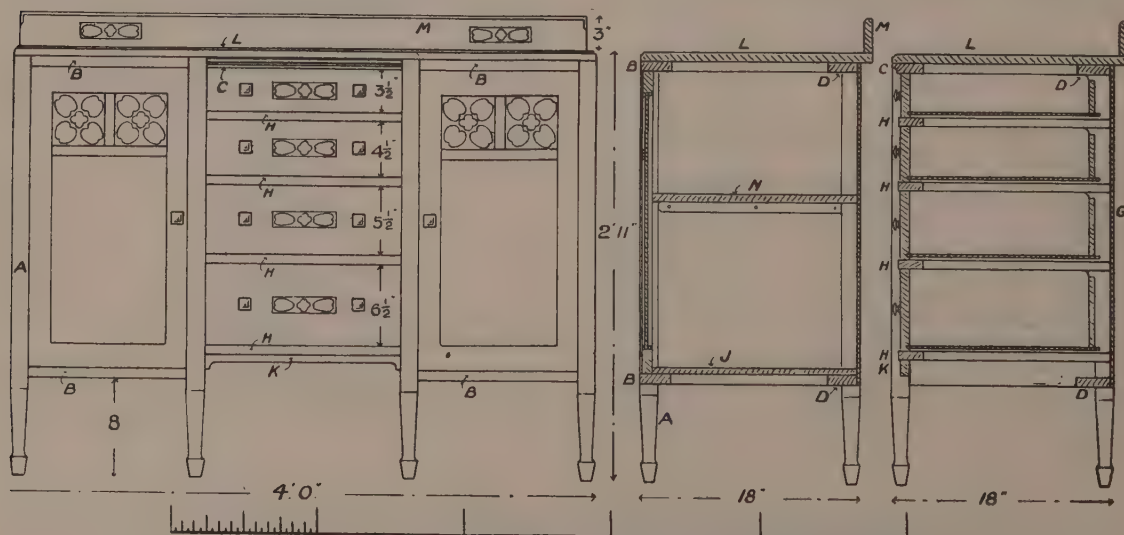


FIG. 2.—SCALE ELEVATION OF 4 FOOT SIDEBOARD. FIG. 3.—SECTION (CUPBOARD). FIG. 4.—SECTION (DRAWERS).

either end, short rails (B) will be dovetailed into position above with an additional dovetail to enter both outer and inner ends of carcase. Similar front rails are provided below to be tenoned to legs with an additional bearing in the ends to which they can be screwed.

Between the inner pair of legs, the top rail (C) is shown as moulded, which will form a neat relief whilst at the same time slightly recessing both bearer rails and drawer fronts below. This rail (C) will also be dovetailed into position in legs with a screw into inner ends. At back a full length rail (D) will be dovetailed into outer pair

of back legs and ends, in addition to which it will be mortised for tenons on the inner back legs to enter right through. In another manner this rail could be fixed to the inner back legs by the entry of lengths of hardwood dowel by boring from above, or the parts could be screwed.

THE CARCASE ENDS (E) are shown as recessed within the legs about $\frac{1}{4}$ in., and will be best made up with the glueings tongued with cross cut hardwood tongues. With the grain running vertically the ends may be grooved and doweled into position, or, if with grain running horizontally, the ends may enter legs with about five tenons

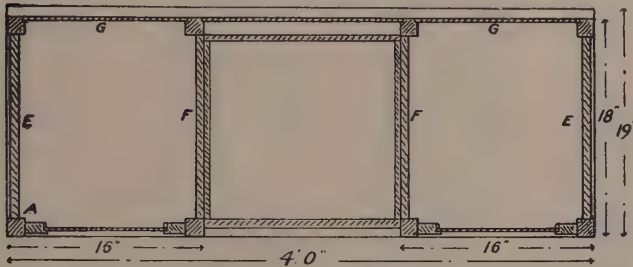


FIG. 5.—SECTIONAL PLAN (SCALE AS FIGS. 2, 3 AND 4).

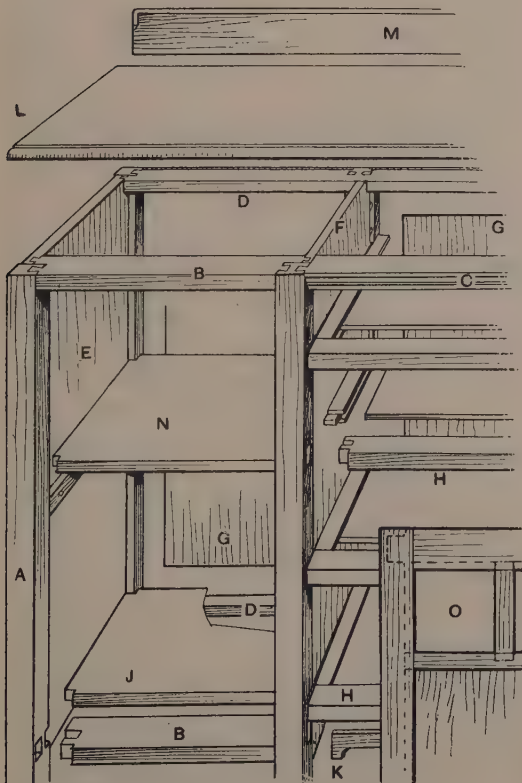


FIG. 6.—GENERAL METHOD OF CONSTRUCTION.

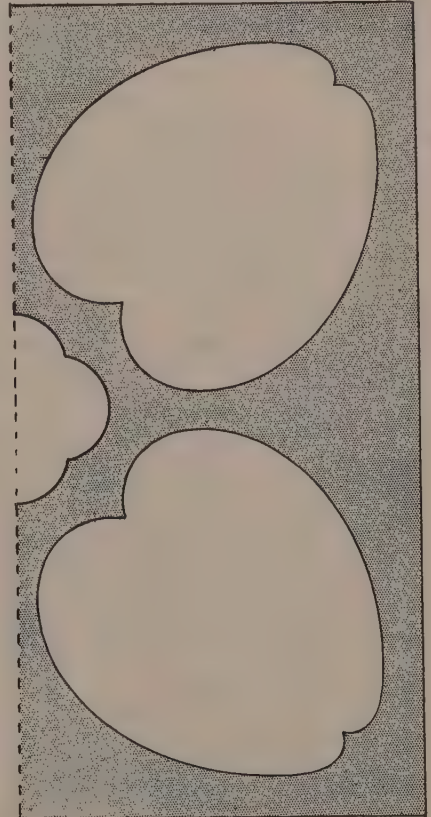


FIG. 7.—HALF FULL-SIZE DIAGRAM OF DOOR OVERLAY.

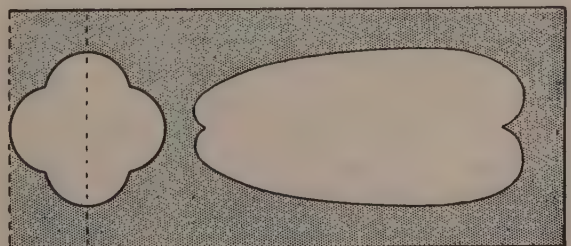


FIG. 8.—HALF DIAGRAM OF DRAWER OVERLAY.

to be pegged. The inner ends (F), as shown in plan, Fig. 5, are fitted flush with the faces of inner legs and can be grooved and pegged or dowelled into position, where they will provide a flush surface for the drawers to travel against. To obtain a satisfactory result it will therefore be necessary to give full attention to the squaring up of the whole thing so that no binding may occur.

THE CARCASE BACKS (G) may be of 5 mm. plywood, cut and fitted in three panels and rebated into legs to finish flush when screwed home.

THE DRAWER BEARERS (H) will be cut with one tenon to enter legs and an additional tenon to enter right through inner ends. Note that these inner ends (F) are allowed a lesser thickness than those (E) forming the outside ends of carcase.

The bearer rails are best fitted with dustboards which may be of plywood grooved into position. Runner rails for the drawers, of equal thickness with the bearers and about 1 in. wide, may be tongued to enter the same grooving in addition to being screwed to inner ends and correspondingly grooved for dustboards. Corresponding rails to the bearers may be fitted at back with a stiffening result, but, as in the present case, are often omitted.

THE CUPBOARD BOTTOMS (J) will be cut to notch round inner angles of legs and bed upon the rails B and D; in addition they may, if desired, be glue-blocked under to ends.

The narrow apron piece (K) can be stubbed into position, or, if cut to butt tightly between legs, may be merely screwed or glue-blocked when fixing.

THE TABLE TOP (L) finishes flush at front and ends to be neatly moulded as shown, the overhang at back being allowed $1\frac{1}{2}$ in. as an allowance for the room skirting. The top can be screwed into position through rails B and D, and also be glue-blocked to ends, the blocks being preferably cut with the grain to agree with the parts which they hold.

THE TOP BACK RAIL (M) is allowed 3 in. in height and is screwed into position from under the projection of table top; or, as is often done, an extra allowance in height is made for the part to be cut into the back edge of table top and be screwed home flush.

THE DOORS (O) will be framed up of stiles and rails to be mortised and tenoned together and pegged, the panel rails being notched into position as they occur and the door panels of 5 or 7 mm. plywood either grooved into position or rebated in to be beaded in from the back. Such panels may be recessed a matter of $\frac{1}{2}$ in. only, or it would be possible to use plywood up to $\frac{3}{4}$ in. thickness for the doors and effect the relief by means of an overlay of 3 mm. ply into which the fretwork relief can be introduced. A full sized detail of the applied fret is given at Fig. 7. A convenient method of glueing these frets ready for applying in position is to warm a spare board and spread upon this a layer of glue which should

be at boiling point for use; the fret is then laid upon this and quickly placed in position.

THE DRAWER FRONTS should be carefully cut so that they fit glove-tight without play, sides and back being dovetailed together in the usual manner and the bottoms grooved in.

The erinoid handles throughout are indicated as of plain square design, but various patterns are obtainable.

The fretwork mounts would, of course, require cutting specially to size, but if the worker has no facility in this direction, the work can be carried out in repeats cut under one operation from plywood for a moderate sum.

CUTTING LIST for 4 ft. sideboard:—

	Long. ft. ins.	Wide. ins.	Thick. ins.
(A) 8 legs	3 0	$1\frac{1}{2}$	$1\frac{1}{2}$
(B) 4 front rails	1 4	$2\frac{1}{2}$	$\frac{3}{4}$
(C) 1 front rail (moulded)	1 6	$2\frac{1}{2}$	$\frac{3}{4}$
(D) 2 back rails	4 0	$2\frac{1}{2}$	$\frac{3}{4}$
(E) 2 outer ends	2 3	17	$\frac{3}{4}$
(F) 2 inner ends	2 3	17	$\frac{3}{4}$
(G) 2 backs	2 3	14	ply
1 centre back	2 3	17	ply
(H) 4 drawer rails	1 6	2	$\frac{3}{4}$
(J) 2 cupboard bottoms...	1 5	15	$\frac{3}{4}$
(K) 1 shaped rail	1 4 $\frac{1}{2}$	$1\frac{1}{2}$	$\frac{3}{4}$
(L) 1 top	4 1	$19\frac{1}{2}$	$\frac{3}{4}$
(M) 1 upper back	4 0	3	$\frac{3}{4}$
(N) 2 inside shelves	1 5	$14\frac{1}{2}$	$\frac{3}{4}$
(O) 4 door stiles	2 1	$1\frac{1}{2}$	$\frac{3}{4}$
4 door rails	1 2	2	$\frac{3}{4}$
2 door panels	1 10	11	ply
door barring	2 6	1	$\frac{3}{4}$
1 drawer front	1 4 $\frac{1}{2}$	$3\frac{3}{4}$	$\frac{3}{4}$
1 drawer front	1 4 $\frac{1}{2}$	$4\frac{3}{4}$	$\frac{3}{4}$
1 drawer front	1 4 $\frac{1}{2}$	$5\frac{3}{4}$	$\frac{3}{4}$
1 drawer front	1 4 $\frac{1}{2}$	$6\frac{3}{4}$	$\frac{3}{4}$

Drawer sides and backs, $\frac{1}{2}$ in.; bottoms of ply; drawer runners, etc.; 4 frets, $4\frac{1}{2}$ in. by $4\frac{1}{2}$ in. by $1\frac{1}{2}$ in.; 6 frets, 5 in. by $1\frac{1}{2}$ in. by $1\frac{1}{2}$ in.; 2 pairs brass butt hinges; 10 erinoid knobs, etc.

In the above list lengths and widths allow for joints and paring; all thicknesses are net, finished.

If it is desired to extend the sideboard to a length of 4 ft. 6 in., add $1\frac{1}{2}$ in. to width of each door and add 3 in. to middle drawer section. (389)

Shoe Cabinet

(Continued from page 333).

sides into the fillets as at Figs. 3 and 6.

THE DOORS are solid pieces of wood, 2 ft. $5\frac{1}{2}$ in. long by $9\frac{1}{2}$ in. wide beaded and rebated together, as at Fig. 7. The bottom edges are shaped, and strips of $1\frac{1}{2}$ in. by $\frac{1}{2}$ in. moulding are grooved across the face. Bolts and a suitable catch could be used to fasten the doors, or a couple of ball catches could be fitted between the top edges of the doors and the under side of the top shelf.

THE SHOE RACKS are formed with $\frac{1}{2}$ in. wooden rods, bored into flat fillets about 8 in. long by $1\frac{1}{2}$ in. wide by $\frac{1}{2}$ in. thick (see Fig. 8), the fillets being screwed to the sides of the cabinet as at Fig. 3.

TIMBER NOTES

MAHOGANY WOOD—ITS VARIETIES

IN the year 1720, one Dr. Gibbons, a physician residing in King Street, Covent Garden, received a few planks of mahogany from his brother, a captain in the West India trade. After a good deal of trouble, occasioned by the wood being too hard for the tools generally used by the woodworkers of that time, a candle box and bureau were made by Woolaston, a cabinet maker of Long Acre, and excited much admiration for the beauty of the wood.

That is how and when mahogany was first introduced to this country for general purposes, and since then its popularity has never waned. From that year it began to supersede walnut and pear-tree in the houses of the nobility. To-day, it is one of the foremost woods of the world, and despite the vagaries of fashion retains its place as a first class hardwood. Its rich colour and capability of high polish make it second to none for interior fitting and cabinet work, and its strength makes it an important constructional material.

There are many species of mahogany, and many grades of each kind, with the result there is a large range of prices reflecting the different qualities, with such contrast as to sometimes startle the inexperienced buyer. He would, indeed, be a clever man who could name all the different species of this wood at sight. It requires years of practical experience and the constant familiarity between the eye and the wood before one can be certain of identifying timber correctly. The similarity of certain woods is very close, such as maple and birch, oak and chestnut, scented mahogany and cedar, the two last-named woods being particularly difficult to distinguish with the eye. Old woodworkers assert that no person can tell the quality of mahogany until a shaving or two has been planed off. However, with great inconsistency they are usually the first to scold the timber merchant for sending them a "dud" board. He is expected to know, by some miraculous means, what the inside of every board and plank is like!

The Standard Mahoganies.

SPANISH MAHOGANY is the best, and the finest is from St. Domingo. This wood is hard and beautifully figured. Needless to say, it is very expensive, and would not be supplied unless by special request. It is also imported from Tobasco, Cuba, Mexico and other places. The wood is about 26 ins. in width and about 10 feet in length.

HONDURAS.—That which most timber merchants sell as "prime mahogany" comes from Honduras, South America. Although it has a close and straight grain, it is not as hard as Spanish mahogany. It is less difficult to work, is excellent for polishing, and will stand well. It runs fairly wide, and is quite suitable for the highest class work. Next to Spanish mahogany, it commands top price. Honduras mahogany is im-

ported in the form of logs, which are cut into boards and planks of different thicknesses in this country; it also comes over in square-edged planks, kiln dried and ready for immediate use. The latter are the better proposition for the small consumer, although there is a lot to be said against kiln-dried timber and many woodworkers will not use it. However, in the first place these boards are already squared up, saving much time and waste; and, secondly, they can be purchased in quantities more near to actual requirements. Most timber merchants will cut off a small length from a square-edged plank or board, but few will spoil a log by hacking the boards about. That is only reasonable.

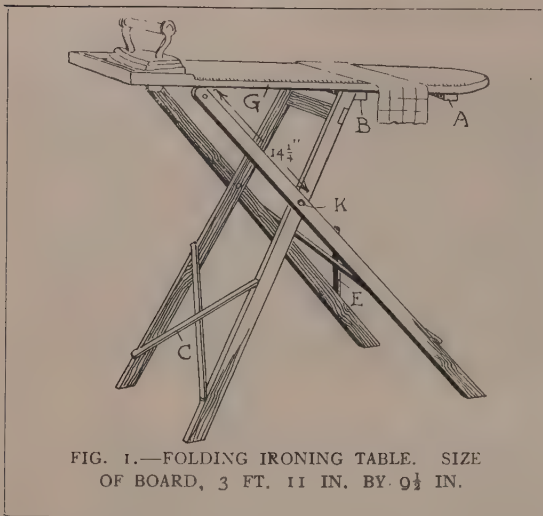
African and other Varieties.

AFRICAN MAHOGANY is of a different texture, and slightly different in colour from Spanish and Honduras wood, being coarser and having a tinge of pink in colour. The grain is also different, having a tendency to run in opposite directions, and sometimes inclined to be spongy, making the wood very difficult to plane to a smooth surface. Nevertheless, it has some advantage over other mahoganies. Coming from a much larger tree it can be obtained in very wide widths and long lengths of a uniform measurement. Being inferior in quality to Spanish and Honduras mahogany it is, of course, lower in price. African mahogany was the last of the "big three," viz., Spanish, Honduras and African, to be introduced into this country and, as is usual with all "new" woods, a great deal of prejudice had to be overcome before it came into general use. It was not until the nineteenth century that African mahogany arrived. As a mahogany it stands alone, being of a different species from the genuine Central American wood, and probably that is why even to this day a certain amount of unjustifiable prejudice hangs to it.

In recent years many other so-called mahoganies have been imported, all inferior to the original brands, chief among them being Philippine mahogany. Although it is accepted in this country as a true mahogany, in America there has been much controversy over this particular wood, many contending that the wood is *not* mahogany, and more than one attempt has been made in that country to legally prevent it being described as such. Philippine mahogany is clean, straight-grained, and will polish well. It is comparatively light of weight, and has not the body of Honduras or African wood, but its chief defect is a tendency to warp when cut into boards. However, it is quite suitable for show work, where it will not be required to take great weight or strain.

"Mahogany" is a wide term, and, unless you have a practical knowledge of woods, great care should be exercised in purchasing. Otherwise you will soon waste much money. (393)

FOLDING IRONING TABLE



THE folding type of ironing board is now universally in demand, and we illustrate here an article, easy to make, which will use up many odd and narrow pieces of white deal or other woods which have accumulated in the workshop.

THE TOP BOARD (G) may be of clean red deal, yellow pine, spruce, or canary wood, with edges slightly rounded and the right hand end cut away on the curve to the indicated sizes. The left hand end of this top board is covered with thick sheet asbestos, which is held in position by sprigging down the three small hardwood beads

which are shown at J. The remaining portion of the top is covered with a piece of old blanket-
ing, over which a piece of calico is tacked to give
a fine finish. A piece of leather cloth chair band-
ing and a few round headed brass chair nails
will give a neat finish to the edges. This top
board (G) may be the first portion of the article
to be made.

FRAME.—The next portion is the outside frame, which consists of two long legs with diagonal bracing pieces marked E in the completed sketch. These legs are pivot-hinged on to the piece F, by using the two bent iron brackets and a couple of suitable bolts. The iron brackets, $\frac{1}{4}$ in. thick, are screwed to the piece F, this piece in due course being securely screwed to the underside of the top board.

The inner leg frame may now be taken in hand. This is again braced together with the strips marked C, whilst at the top end the legs are half checked so that the top cross rail (D) may be glued and screwed in position. The pieces A and B are then screwed in position, B to act as a leg stop, and A to act as a batten to prevent the top board splitting or warping. The centre pivot bolts are shown at K, and the distance for fixing them is given on the drawing (Fig. 1).

Fig. 2 shows the appearance of the appliance when it is folded up. It will be seen that it takes up very little room when it is not in use, and that it can be easily carried from room to room as may be desired.

At Fig. 4 we give a part sketch of the inverted top board, and this shows how the hook and eye come into action when the appliance is in use.

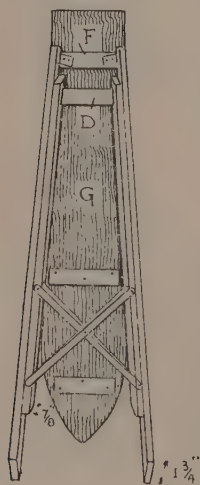


FIG. 2.—FOLDED.

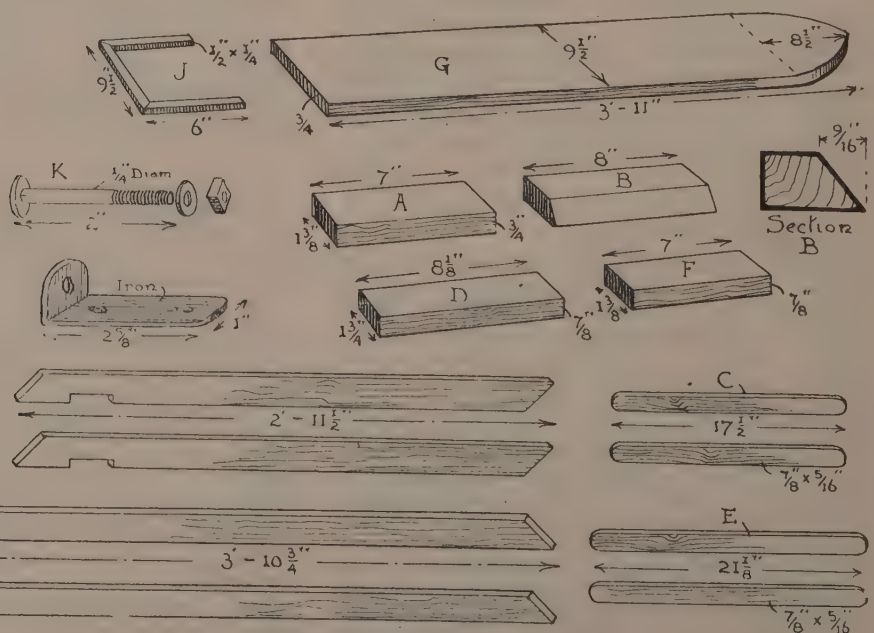


FIG. 3.--DETAIL SKETCHES OF THE VARIOUS PARTS.

Detailed sizes and sketches of the parts are given (Fig. 3) and this makes a cutting list unnecessary. The diagonal braces (C and E), the pieces (A, B and F) and the three strips (J) are best if made of hardwood such as beech, birch, or ash.

To finish the work the legs and framing should be given a coat of glue size, and after they are thoroughly dry the work should be glasspapered down and given two coats of spirit varnish or of ordinary knotting. (396)

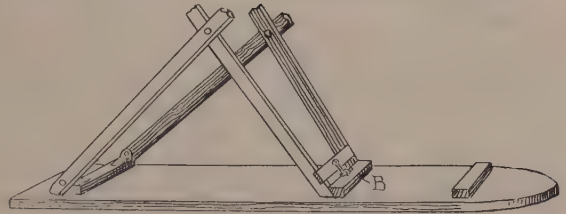


FIG. 4.—PART INVERTED SKETCH.

Smoker's Cabinet

THIS useful little piece (see Fig. 1) is of modern design, simple and inexpensive to make, and very useful to the smoker. It is made with a shaped back ornamented around the edges with embossed moulding; a cabinet which is enclosed with a pair of solid wood doors is fitted in the centre, and pipe racks are placed at the ends.

THE CABINET is made with a bottom, top, and two sides, as at Fig. 2, the wood used being $\frac{3}{4}$ in. thick. The bottom is 13 in. long by 3 in. wide, shaped as shown at Fig. 3. The top is $9\frac{3}{8}$ in. long by $3\frac{1}{2}$ in. wide, and the sides, which are housed or dovetail grooved into the top and bottom, are $7\frac{3}{8}$ in. long by 3 in. wide.

THE BACK could be of thin plywood, 14 in. long by $9\frac{3}{8}$ in. wide, shaped as at Fig. 4. Strips of $\frac{1}{2}$ in. embossed moulding are fixed around the edges, and the back is screwed or pinned to the edges of the top, bottom and sides of the cabinet. Small fillets are fitted around the ends of the bottom of the cabinet to form the pipe racks, and the racks are completed by fixing shelves of $\frac{1}{4}$ in. wood, shaped as shown at Fig. 5, in the angles between the back and sides.

THE DOORS are two solid pieces of $\frac{3}{4}$ in. or $\frac{1}{2}$ in. wood, beaded and rebated together in the middle (see Fig. 6) and ornamented by grooving in strips of $\frac{1}{2}$ in. embossed moulding. Of course, the worker is at liberty to omit the embossed moulding from doors and back if he prefers a plain cabinet. (396)

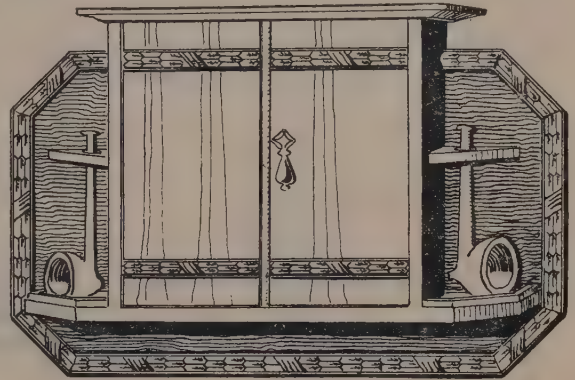
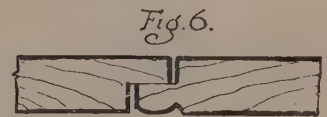
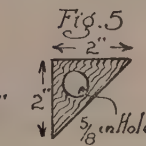
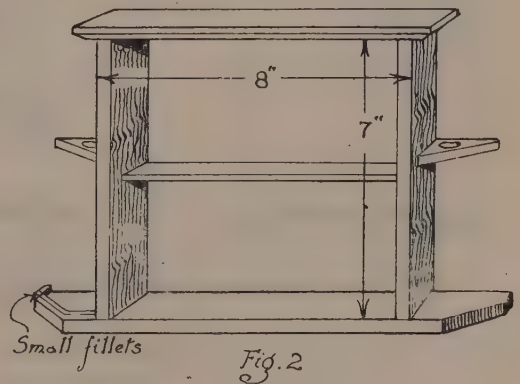
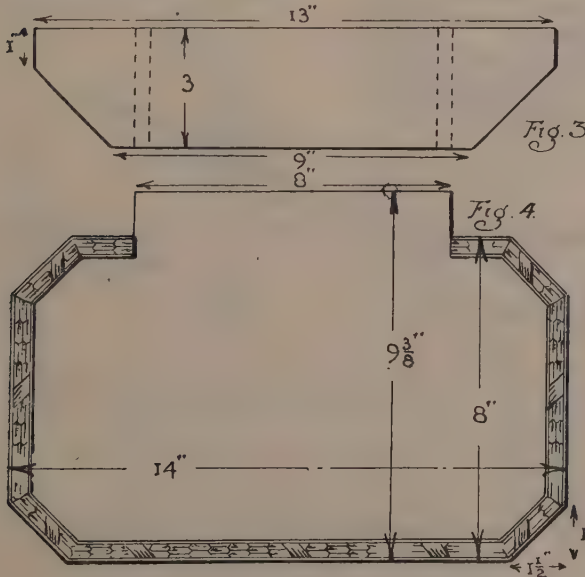


FIG. 1.—SMOKER'S CABINET, 14 IN. BY 11 IN.



FIGS. 2 TO 6.—DETAILS OF SMOKER'S CABINET AND PIPE RACK.

READING STAND FOR ARMCHAIR

THE convenience of the reading stand illustrated and described on this page will be very apparent to everyone. It may be used with any kind of armchair, where with its support one may rest and read or write in comfort. The sketch (Fig. 1) shows the stand in use. Fig. 2 gives an enlarged view of the finished stand, while Figs. 3 to 7 show details which will be helpful in the construction. From these it will be seen that the stand is made with a light frame covered with a thin panel, in the centre of which an adjustable book rest is fitted.

THE FRAME (Fig. 3) is made with top and bottom rails, 3 ft. long by $1\frac{1}{2}$ in. wide by $\frac{1}{2}$ in. thick, and four cross rails, $9\frac{1}{2}$ in. long by 2 in. wide by $\frac{1}{2}$ in. thick, framed together with mortise and tenon joints. The panel (Fig. 4) is 2 ft. 11 in. long by 10 in. wide by $\frac{1}{2}$ in. thick. An opening is cut as shown and, if this is carefully done, the piece of wood removed may be used for the book rest. The edges of the frame are rounded; the panel is glued to the frame, and slips $\frac{3}{4}$ in. high by $\frac{1}{2}$ in. thick, are fixed at the back and end edges, while a slip $\frac{1}{2}$ in. high is fixed at the front edge (see Fig. 5).

THE BOOK REST (Fig. 6) is strengthened by fixing a batten, 2 in. wide by $\frac{3}{8}$ in. thick, at the

back, and a strut $3\frac{1}{2}$ in. long by 2 in. wide by $\frac{3}{8}$ in. thick, which is used to adjust the rest, is hinged to the batten.

The difference in the sizes of the openings in the frame and panel forms rebates into which the book rest fits, and it is hinged at the front with a pair of 1 in. hinges. Finally the notched rail (Fig. 7), which is $9\frac{1}{2}$ in. long by 2 in. wide by $\frac{1}{2}$ in. thick, is screwed under the opening in the frame. (387)

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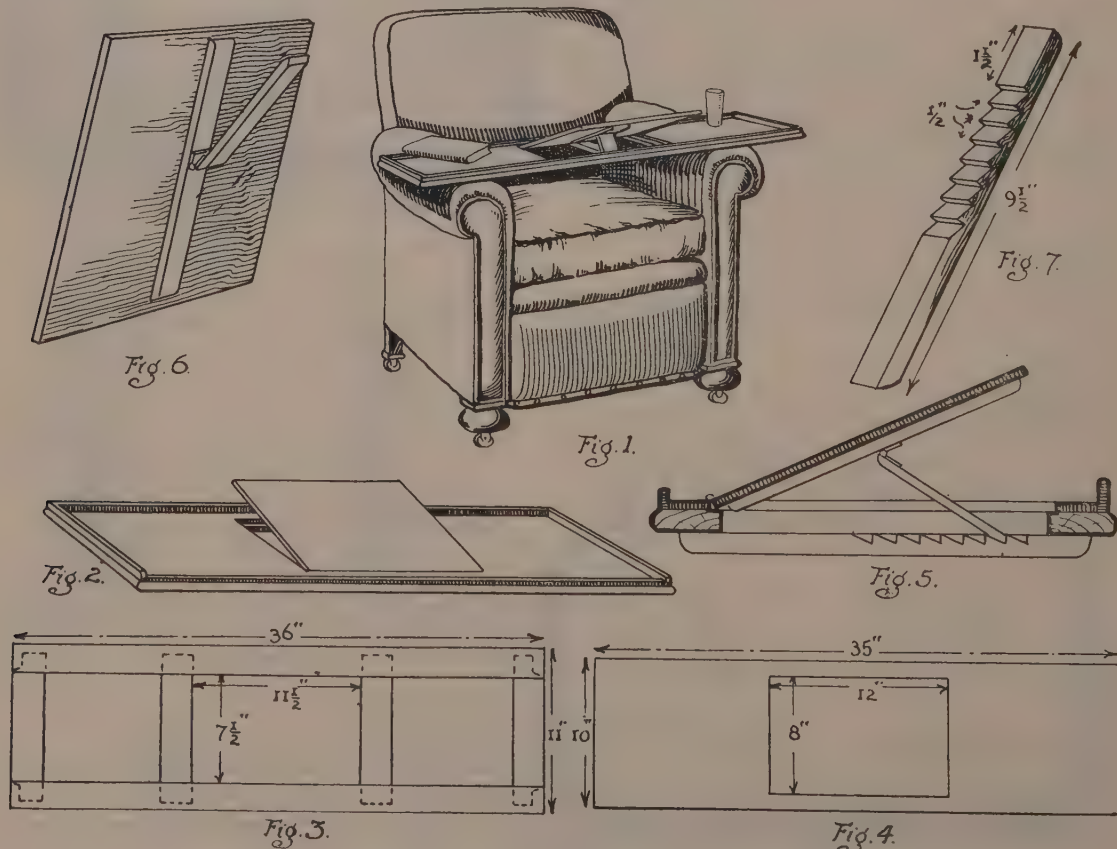


FIG. 1.—ARMCHAIR READING STAND. FIGS. 2 TO 7.—DETAILS OF CONSTRUCTION.

FOR THE LIVING ROOM

BOOKSTAND AND NEWS CABINET

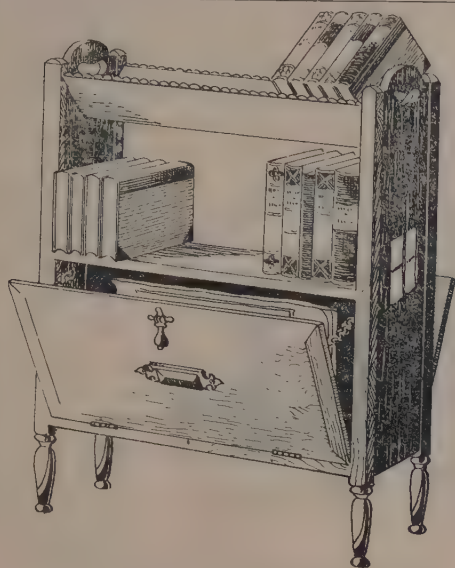


FIG. 1.—USEFUL LIVING ROOM ITEM.
30 IN. BY 24 IN.

PLACED in the living room, the stand and cabinet (Fig. 1) will accommodate the reference books in general use in the majority of homes. The trough and shelf could be reserved for the usual dictionary, directory, railway guide and library volumes, while one side of the news cabinet could be used for weekly and monthly magazines, the other for the daily papers.

MATERIALS.—Any of the usual woods may be used, a general estimate of the materials required being:—Four legs, 2 ft. 6 ins. long by $1\frac{1}{4}$ ins. square; two ends, 2 ft. $1\frac{1}{2}$ ins. long by $5\frac{1}{2}$ ins. wide; two shelves of book trough, 2 ft. long by 4 ins. wide; top and bottom of news cabinet, 2 ft. long by 8 ins. wide; two doors, 1 ft. 10 ins. long, by $10\frac{1}{2}$ ins. wide; two cleats, $10\frac{1}{2}$ ins. long by $1\frac{1}{2}$ ins. wide by $\frac{1}{8}$ in. thick; a plywood division, 1 ft. 10 ins. long by $10\frac{1}{2}$ ins. wide; 4 ft. of $\frac{1}{2}$ in. half-round turned beading, two ball catches, two knobs or handles, two wood ornaments and frets, about 2 ft. of small brass chain and four brass hinges. The working dimensions are given at Figs. 2, 3 and 4.

THE LEGS are of a readily obtained stock pattern with about 5 ins. turned at the bottom. The ends, which are shaped as shown at Fig. 5, are dowelled to the legs, and recesses $\frac{1}{4}$ in. deep are

(Continued at foot of page 352).

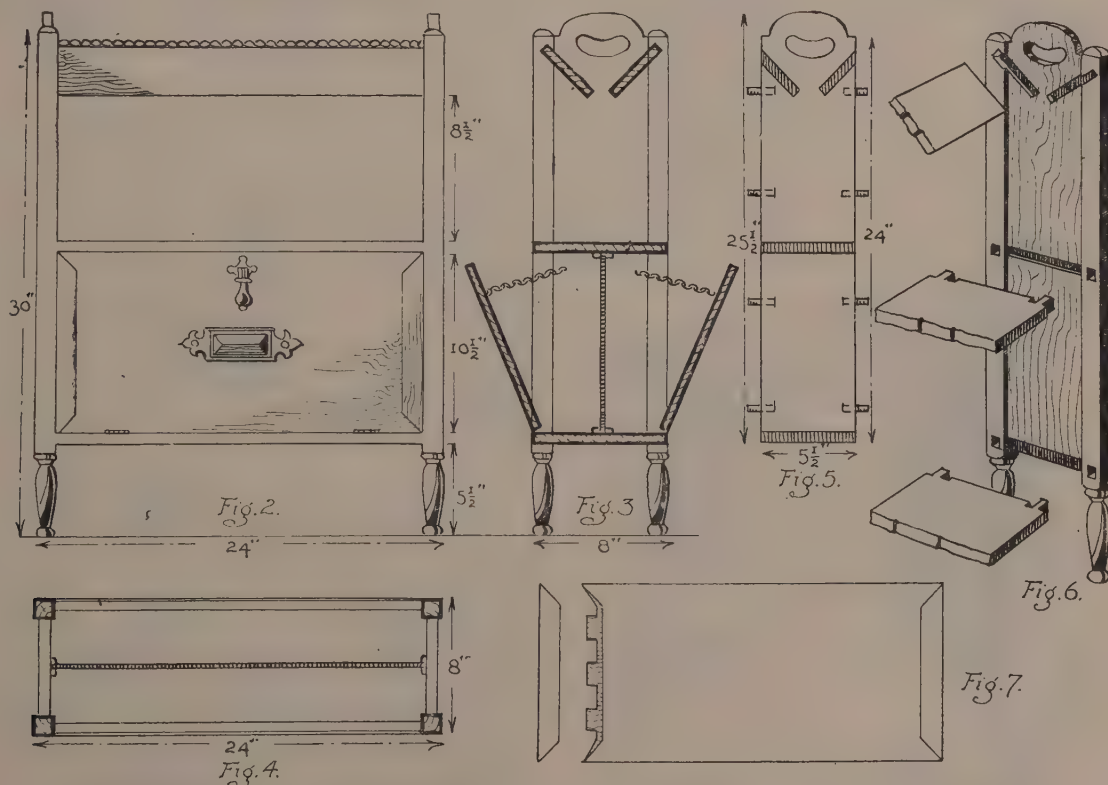


FIG. 2.—ELEVATION. FIG. 3.—END SECTION.

FIG. 4.—PLAN. FIGS. 5, 6, 7, DETAILS, ETC.

UP-TO-DATE POULTRY HOUSE

A POULTRY HOUSE constructed on up-to-date lines is illustrated in Fig. 1, which provides plenty of lighting facilities and ventilation without draughts—two necessary features if good results are to be expected. The house shown is about 10 ft. long by 5 ft. wide, 6 ft. high at front and 5 ft. high at back. Near the top of the front is an open ventilator, with wire-netting, which is protected from wind and rain by a weather screen made of match boarding and supported by means of shaped brackets as shown.

Immediately below this two windows are hinged to open to any convenient angle for the purpose of additional ventilation and direct sun rays. During inclement weather they may be closed, whilst yet permitting ample light. Below these again, nesting boxes are provided with a drop front which facilitates the collecting of eggs without having to enter the house.

One end of the house is provided with a door and the roof is of the simple lean-to type. At the back of the house, inside, a dropping board and perch are arranged, these keeping the floor comparatively clean. No wooden floor is shown, but if this is desired it may easily be constructed

by nailing $\frac{3}{4}$ in. tongued and grooved floorboards to 3 in. by 2 in. joists to the required dimensions.

FRONT FRAME.—A dimensioned elevation of the front frame is shown in Fig. 2. This is composed of four 3 in. by 2 in. rails, 10 ft. long, with two outside vertical posts of the same material, 6 ft. high, housed to receive them. At a distance of 8 ins. from the top rail an open

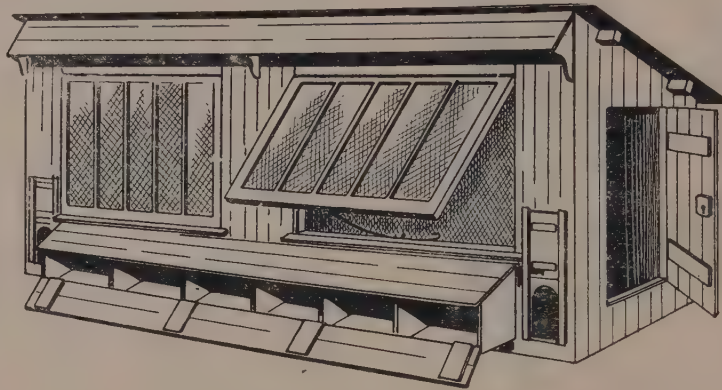


FIG. 1.—POULTRY HOUSE : LENGTH, 10 FEET; WIDTH, 5 FEET.

ventilator is arranged, this being subsequently covered with wire netting from the inside. Below this two windows, each 3 ft. square, are placed 1 ft. from each end of the house, and below these again space for nesting boxes and entrances is provided.

The various pieces mentioned may be set out to the dimensions given, housed where necessary $\frac{1}{4}$ in. deep, and securely nailed with 5 in. round wire nails. Care must be taken to keep the outside of the framing flush to receive the match-boarding.

BACK FRAME.—Fig. 5 illustrates the corresponding back frame which, of course, is only 5 ft. high and has no provision for windows, etc., a middle rail only being inserted to carry the matchboards. Note that the frames are square before nailing on the matchboards, or considerable trouble will be experienced when assembling.

END FRAMES.—Fig. 4 shows the end frame with doorway, which is constructed to the given dimensions and in the manner already described for the other frames. It will be observed, however, that the top rail of this frame and the corresponding end frame (Fig. 3) is kept 3 ins. lower than the effectual height of the house for the purpose of supporting the two 3 in. by 2 in. roof purlins which are placed approximately 15 ins. from each end.

The end frame shown in Fig. 4 is provided with a door of the ledged and battened type, and is subsequently hinged with T hinges to open outwards. A rebate for the door is formed on the framework by allowing a margin about 1 in. wide when nailing on the matchboards.

Having covered all frames where necessary with matchboards they may be securely bolted together at the corners with $\frac{3}{4}$ in. cuphead bolts, placing the end frames between the front and back frames, then erecting the whole structure on a suitable floor, previously mentioned, if found necessary.

THE ROOF is then formed by placing the two purlins in position and fastening them with

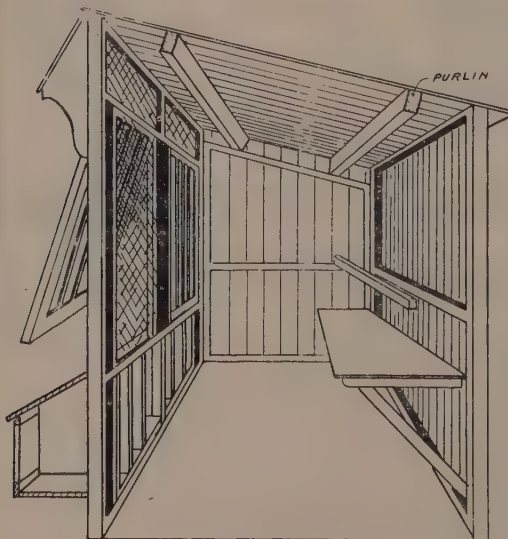


FIG. 1A.—CONVENTIONAL VIEW OF INTERIOR.

small angle irons to the framing inside. The matchboards may then be cut off to length. Allow a 1 in. overhang of the screen at the front, about 3 ins. at the back, and 2 ins. at each end; then nail same to the purlins.

VENTILATOR.—As previously mentioned, the front frame is provided with a ventilator and draught screen, the screen being formed by screwing three brackets made to the dimensions given in enlarged vertical section (Fig. 8) to the

vertical parts of the framework. The upper surfaces are covered with matchboards or weatherboards.

TWO CASEMENT WINDOWS are now required for the spaces provided below the ventilator. These are constructed from ready-made sash material as indicated in Fig. 6. The four stiles or vertical pieces are cut off about 3 ft. 3 ins. long from $1\frac{3}{4}$ by $1\frac{3}{4}$ ins. sash stile and set out for mortises to receive the top and bottom rails. The latter

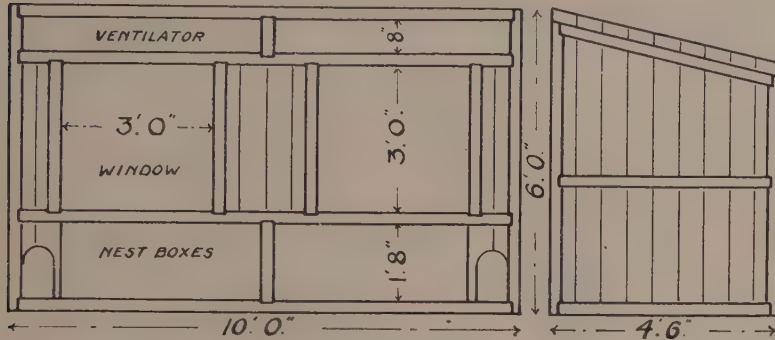


FIG. 2.—FRONT FRAME OF HOUSE.



FIG. 3.—END FRAME.

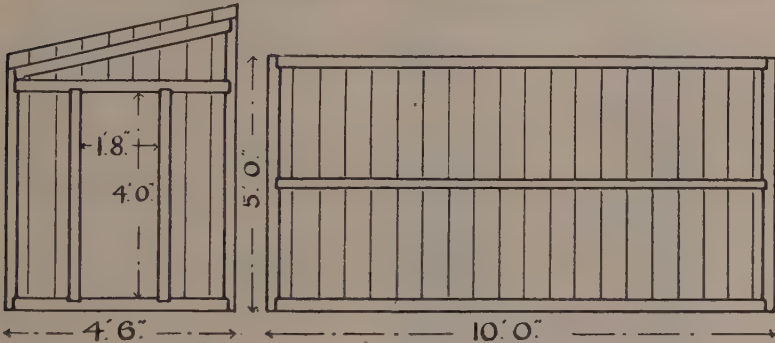


FIG. 4.—DOOR FRAME.

FIG. 5.—BACK FRAME.

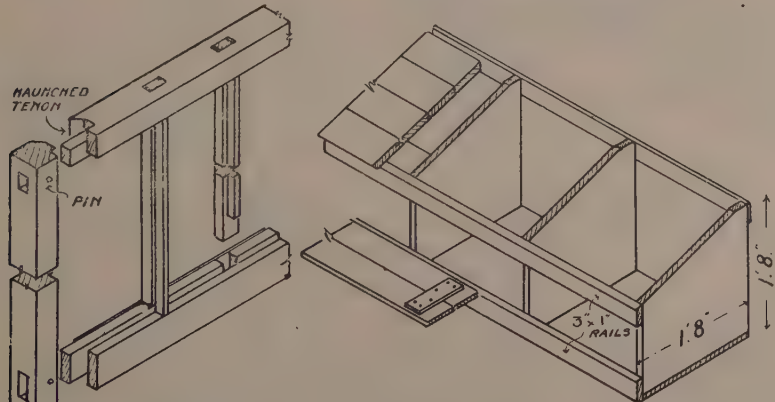


FIG. 6.—CASEMENT CONSTRUCTION.

FIG. 7.—NESTING BOXES.

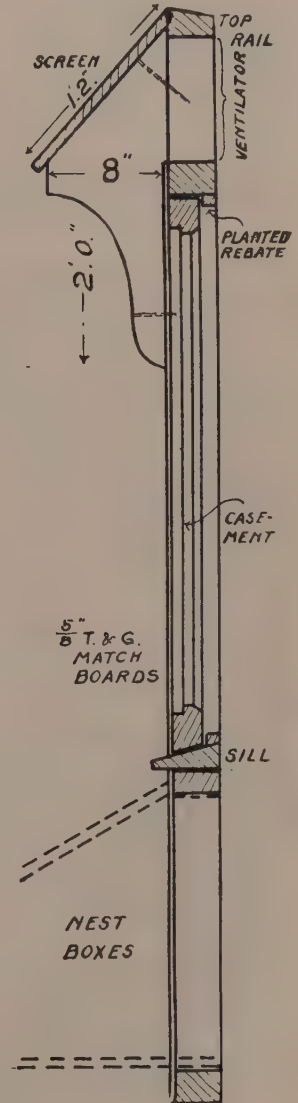


FIG. 8.—VERTICAL SECTION THROUGH FRONT FRAME.

are about 3 ins. wide, while the top rail is $1\frac{1}{2}$ ins. wide like the stiles. These are tenoned about two-thirds of their width and haunched to fit the mortises as shown. Vertical bars are now tenoned into the top and bottom rails as indicated.

Having completed this work the frames may be glued up and $\frac{1}{8}$ in. hardwood pins inserted through the mortise and tenon joints at the corners, the whole being subsequently cleaned off and hinged to the framework at the top edge. A casement stay is arranged at the sill to prop the windows open to any desired angle.

A rebate and weathered sill is arranged round the inside of the opening by nailing strips of wood about $\frac{1}{2}$ in. thick as shown in Fig. 8. The openings are then covered on the inside with wire-netting.

THE NESTING BOXES are constructed as in Fig. 7 from 1 in. deal. The top is of $\frac{3}{4}$ in. matchboard-

ing, fixed to a slope of approximately 30 deg., while the front is hinged to the bottom rail to facilitate collecting eggs.

Fig. 1A is a conventional view of the inside of the house showing dropping board and perch arrangements. The dropping board may be made from $\frac{3}{4}$ in. matchboards to 1 ft. 6 ins. wide and supported on bracketted legs, while the perch (which also runs the full length of the house) is supported on the middle rails of the end frames.

Some poultry keepers suggest lining the house with celotex or beaver board, both for sanitary reasons and for warmth. This, however, is left to the discretion of the builder. In any case, the house should be treated outside with some wood preservative and the roof covered with roofing felt. (426)

WOODWORK JOINTS COMPETITION

PRIZE AWARDS

IN this Competition (announced last month) the prizes have been awarded as follows:—

FIRST PRIZE, TWO GUINEAS: J. Betley, Clergy House, Doncaster, Yorks.

SECOND PRIZE, ONE GUINEA: E. Harrison. Peewit Hall Farm, Runcorn, Cheshire.

THIRD PRIZE, HALF A GUINEA: R. C. Steele, East View, Sandon Road, Meir, Stoke-on-Trent.

SIX ADDITIONAL PRIZES of Books on woodworking subjects are awarded to:—

W. R. Cockshaw, 28, Taylor Hill Road, Lockwood, Huddersfield.

W. G. Mitchell, 50, Valley Road, Gillingham, Kent.

J. A. Walker, 37, Verena Terrace, Craigie, Perth.

W. Scutt, 67, Esslemont Road, Southsea, Portsmouth.

F. G. Adams, 22, Woodlands Avenue, Sidcup, Kent.

E. C. Stout, Hillbutts, Wimborne, Dorset.

As a matter of interest to competitors and others, we give below a list of the errors, where these occur, on the fifteen illustrations of joints shown (see page viii. of the October number).

1. The slope on the underside of the dovetail will not fit the parallel depth of the recess on the other piece.
2. Sloping tenon will not fit the mortise.
3. Correct.
4. The edge dovetail slopes in the wrong direction and will pull apart either vertically or horizontally.
5. Mortise not prepared to receive the haunch of the tenon, or *vice versa*.
6. The extreme width of the edge dovetail is larger than the thickness of the wood out of which it is fashioned.
7. Centre dovetail slopes the wrong way.
8. Pins and tails do not agree, although the mitred edges are correct.

9. Two internal pin pieces at the left bevelled wrongly.
10. Pins and tails do not fit each other.
11. The drawer front at the left shows the dovetails thicker than the maximum thickness of the wood out of which they are made.
12. Cannot be put together as the dovetails prevent it.
13. Joint cannot be put together owing to the housing in the vertical piece and the size and slope of the dovetail.
14. Oxford frame joint: the right hand piece as shown is not halved together; it is in two separate pieces.
15. Correct. (The development of this puzzle joint appears on page 196 of the new edition of *Woodwork Joints*).

Bookstand

(Continued from page 349).

cut for the shelves of the book trough and the top and bottom of the cabinet. When the ends and legs are fixed up the recesses for the shelves should be continued as far as necessary in the legs; the top and bottom of the cabinet, besides fitting in the recesses in the ends, are also tenoned into the legs as at Fig. 6. The plywood division which is fitted to the interior of the cabinet is held in place with small fillets, and the bead is glued to the edges of the book trough shelves.

THE CLEATS are framed to the ends of the doors, as at Fig. 7, or for a quick job they may be screwed across on the inside. The doors are hinged at the bottom, the ball catches and handles fitted at the top and the wood ornaments and frets are glued to the face, while the brass chains are fitted as shown at Figs. 1 and 3, to hold the doors when open. (427)

THE WOODWORKER

VOLUME XXXIV.

DECEMBER, 1930.

NO. 445.

MUSIC CABINET

TRUE lovers of music always appreciate a handy and serviceable cabinet for storing their copies free from damage and dirt. With this idea in mind, the article appearing in Fig. 1 has been designed to a useful and compact size. Enclosed within the door are six sliding trays that can be easily with-

drawn. The cabinet is intended for construction in walnut, but oak or mahogany might easily be introduced as alternatives. Finish a walnut job to a golden tint, oak to a nut-brown shade or mahogany to a rich plum.

CONSTRUCTION. — Fig. 3 gives a general survey of the assembly of all items. Taper the legs (A) and work a spade toe. This can be accomplished either with a mallet and chisel, spindle or bowsaw, finally cleaning up with a bull-nose plane. Cut mortises on two faces of the legs to receive the haunch tenons, $1\frac{1}{4}$ in. long, cut on the stool rails B, C and D. Glue and cramp the rails to the legs. Mould the front edges of the linings (E and F) as shown in Fig. 2 and mitre them at the front corners above the legs. Allow them to run right to the back where the back rail (D) runs right up through to support the bottom board (K). Screw the linings down to the rails B and C.

Select mild stuff for the ends (J), bottom (K) and rails (L and M). Dovetail the ends to receive $\frac{1}{2}$ in. dovetails cut on the top rails (M). The frieze rail (L) is just doweled on to the front edges of the ends (J), and might be veneered with a knife cut, cross-banded veneer to give an improved and better finished appearance. Also veneer over the ends of this rail to hide the end grain. Rebate the bottom edges of the ends to

receive the bottom board, notching the latter around at the front. Grooves $\frac{1}{4}$ in. deep and $\frac{1}{2}$ in. wide must also be trenched out across the ends for the tray bottoms (P) to slide into, rebates being worked on the back edges of the former for the carcass back (S). The frieze bead (V) might be

screwed up into the rail, mitred at the corners with the end beads (W), the latter being pinned only to the ends.

Mould the top (N) on front and sides, and cut the ledge (O) into the former and screw through. Pocket screw the top up through the rail and slot screw through rails (M). Finally screw the carcass back into position. Work a half-round section on the front edges of the tray bottoms, and cut hand-holes in the centre. Shape up the sides (Q) and through dovetail with the backs (R). To fix the sides and backs glue and screw up through the bottom (P).

DOOR. — The method of making up the door is shown in Fig. 3. Work a groove around each edge of the plywood panel (G) to receive the tongues of the clamps (H and I), the latter being mitred at the corners. Tooth the panel and clamps together, both sides, for the quartered, knife-cut veneer on the front and straight grained stuff on the back. A cross-banded veneer might be introduced as a margin for the front of the door, the joint of the quartered veneer and cross-band being covered by the

door beads (T and U). The latter should be worked to a flat rounded section, mitred at the corners, and pinned and glued to the panel G. Hang the door upon a pair of $2\frac{1}{2}$ in. brass acorn-ended butts and fit a bullet catch on the bottom edge on the opposite side. A

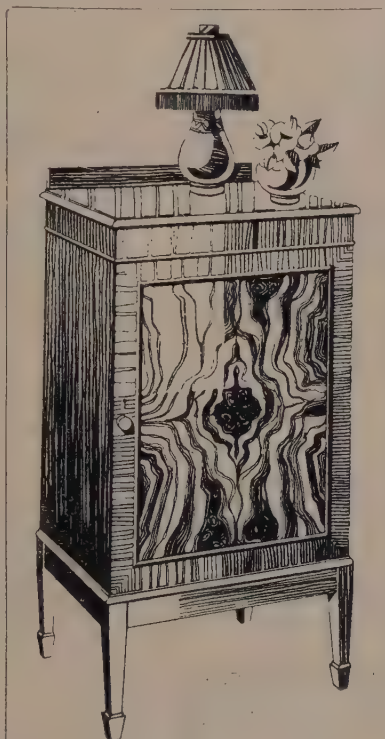


FIG. 1.—MUSIC CABINET
WITH FIVE SLIDING TRAYS.
HEIGHT, 4 FEET; WIDTH,
2 FEET.

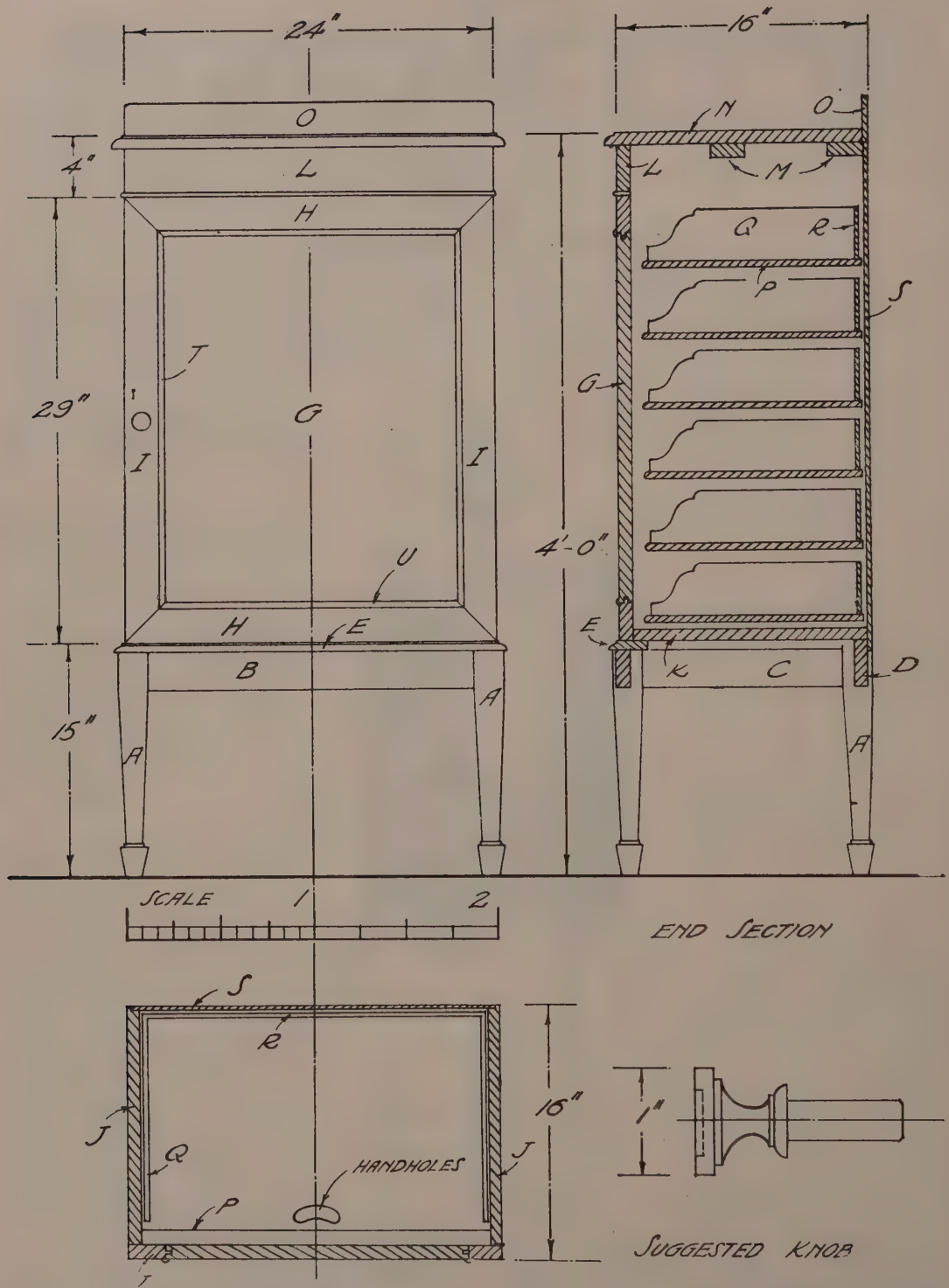


FIG. 2.—FRONT ELEVATION, END SECTION, SECTIONAL PLAN, WITH SCALE.

section of a suitable knob is given with Fig. 2. A link plate lock might be introduced above the knob if so desired.

As a guide to timber, items A, B, C, E, F, H, I, J, L, N, O, P, Q, R, T, U, V, and W might be of English or American walnut. Whitewood, stained walnut colour, could be used for items D, K, and M. Select a good plywood for the panel G, and stain a piece of $\frac{3}{8}$ birch ply to a walnut colour for the carcase back. A piece of walnut or ebony will be required for the knob.

CUTTING LIST:—

		Long. ft. ins.	Wide. ins.	Thick. ins.
A	4 Legs	1 2 $\frac{3}{8}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$
B	1 Front rail	2 0	2 $\frac{1}{2}$	$\frac{7}{8}$
C	2 End rails	1 3 $\frac{1}{2}$	2 $\frac{1}{2}$	$\frac{7}{8}$
D	1 Back rail	2 0	3 $\frac{1}{2}$	$\frac{7}{8}$
E	1 Stool lining	2 1 $\frac{1}{2}$	2 $\frac{1}{2}$	$\frac{3}{8}$
F	2 Stool linings	1 4 $\frac{1}{2}$	2 $\frac{1}{2}$	$\frac{3}{8}$
G	1 Door panel	2 0 $\frac{1}{2}$	19 $\frac{1}{2}$	$\frac{7}{8}$
H	2 Door clamps	2 0	2 $\frac{3}{8}$	$\frac{7}{8}$
I	2 Door clamps	2 5	2 $\frac{3}{8}$	$\frac{7}{8}$
J	2 Carcase ends	2 8 $\frac{1}{8}$	15 $\frac{1}{8}$	$\frac{3}{4}$
K	1 Carcase bottom	1 11 $\frac{1}{2}$	14 $\frac{3}{4}$	$\frac{3}{4}$
L	1 Frieze rail	2 0	2 $\frac{3}{8}$	$\frac{7}{8}$
M	2 Top rails	1 11 $\frac{1}{2}$	2 $\frac{1}{2}$	$\frac{7}{8}$
N	1 Top	2 1 $\frac{1}{2}$	16 $\frac{3}{4}$	$\frac{7}{8}$
O	1 Ledge	2 0	2 $\frac{3}{8}$	$\frac{1}{2}$
P	6 Tray bottoms	1 11	13 $\frac{1}{4}$	$\frac{1}{2}$
Q	12 Tray sides	1 0 $\frac{1}{2}$	3 $\frac{1}{2}$	$\frac{3}{8}$
R	6 Tray backs	1 10	3 $\frac{1}{2}$	$\frac{3}{8}$
S	1 Carcase back	2 9	23 $\frac{1}{2}$	$\frac{3}{8}$
T	2 Door beads	2 1 $\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{4}$
U	2 Door beads	1 8 $\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{4}$
V	1 Frieze bead	2 0 $\frac{1}{2}$	1 $\frac{1}{8}$	$\frac{1}{4}$
W	2 Frieze end beads	1 4 $\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{4}$

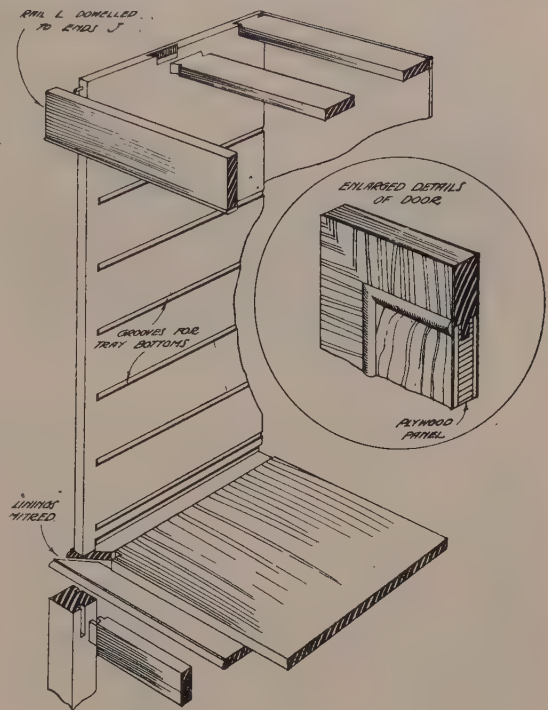


FIG. 3.—GENERAL METHOD OF CONSTRUCTION.

All given sizes in the cutting list are strictly net, and allowance must be made for mitreing, planing and general cleaning up. (452)

THE 1931 WOODWORKER VOLUME

FOR the early parts of the 1931 WOODWORKER we have in preparation a number of new features. One is a series of articles on Light Cabinetwork, in which numerous practical designs for small articles of household utility or ornament will appear. As, too, the average reader is inclined to concentrate on the making of furniture for his own home, we have ready two new suites, one for a Bachelor's Bedroom (with fitted wardrobe and cabinet), the other for a Queen Anne style Living Room. Among other designs in preparation are a Refectory Dining Table, a Box

Kerb, a Hall Wardrobe, China Cabinet, etc. Notes on polishing will be continued, and for next month we have ready an article on modern treatments of oak. We might here, too, draw attention to the Serial Competition for woodworkers which we start this month, and which will be continued till February. Readers may be reminded that, during the winter months, there is always an increased demand for copies, and, to avoid disappointment through delay, it is most desirable that an order for regular delivery should be placed with the newsagent.

"STAINING AND POLISHING."—This volume, one of the most popular of *The Woodworker Series*, was (with the exception of two or three chapters which required little modification) recently re-written. New features are the chapters dealing specifically with the treatment of different timbers, whilst prominence is given to such processes as the cellulose finish, the acid finish, french polishing by machinery, cellulose dipping, etc. In a special section an alphabetical list is given of the many agents used in staining and polishing, with detail particulars, and a comprehensive index is added. (Price 3/6 net).

"HOUSEHOLD REPAIRS AND RENOVATIONS."—Can you distemper a ceiling? Can you paint or wallpaper a room? Can you enamel a bath? Can you repair floors, doors, locks, sash lines, taps, etc.? If not, a book of the kind will save you pounds every year. Entirely new features, specially written and illustrated for this revised edition, are on the upkeep of electric bells, the overhauling of electric lighting system and on the installation and upkeep of wireless. (Price 3/6 net). Evans Bros., Ltd., Montague House, Russell Square, London, W.C.1.

CHIPS FROM THE CHISEL

A SENSE OF PROPORTION

QUITE recently two beautiful Elizabethan table carpets have been acquired by the Victoria and Albert Museum. One is finely embroidered in petit point with three medallions on a diaper ground of red and yellow, and is traditionally associated with the famous Lady Margaret Beaufort, Countess of Richmond. The other was apparently made for the marriage of the first Earl of Bolingbroke. Both pieces are of exceptional artistic beauty, as well as of historical interest, and the thing which most struck me in looking at them was the exquisite sense of proportion displayed in the designs.

* * * * *

Every part is so exactly right in comparison with every other part that, although both designs are full of composite detail, the result is thoroughly harmonious and pleasing. A sense of proportion in design is sometimes as difficult to achieve as a sense of proportion in the ordinary things of life. It means, fundamentally, self-restraint, a steady refusal to let go on some feature or other of the design which may appeal to us as being, perhaps, more interesting or dramatic than the rest. The interest and the drama are excellent in their way, but they spoil the effect if they are allowed to eclipse the design and refuse to subordinate themselves to the whole.

* * * * *

This sense of proportion is a quality of real importance to the woodworker. It is fatally easy, for instance, to yield to the desire to over-decorate any article of furniture which we have just made. We apply some moulding and find the result pleasing. But we have to remember that, beyond a certain point, it will not become more but less pleasing if we continue to apply it, and what this point is can only be decided by our sense of proportion. It is a quality which can be developed by the study of good models, and, be it said, of good *modern* models. For the tendency in modern furniture is everywhere in favour of restraint in decoration, so that in a good modern piece the possibilities of decorative effects, sparingly used, whether they be obtained by perfection of finish, beautiful figure or applied mouldings and carvings, can be seen at their best. Carving is, actually, to-day very little used, and the amateur carver more than almost anyone needs to be on his guard against overdoing it. His first inclination, when he sees a fine plane surface, is to set to work to fill it. For so, he feels, in earlier centuries were things made beautiful. He has spent long hours before specimens of ancient carving in museums and, although he does not claim that same high quality of craftsmanship for his own, still he feels he can produce work which would, in its way, equally touch his household things with beauty.

* * * * *

So it would if judiciously used, and that is where a sense of proportion comes in. For those

museum pieces have been taken from old churches, cathedrals and abbeys, where there was lofty, soaring space, or from old feudal and family mansions where rooms were large and articles of furniture very few. Such work would not be equally at home in a house of the average villa type, jostled by the numerous possessions which even the least acquisitive of people manage to accumulate around them to-day. Carving has therefore to be used with the very greatest care, otherwise it will look meretricious. Indeed, the tendency towards severity and restraint in the furniture of to-day is the natural result of the greater limits of space and the greater number of things which we regard as essential that have to be crowded into it. If all were lavishly decorated the general result in a comparatively small space would be intolerable.

* * * * *

Striking decorative effects please the eye in passing, but are difficult to live with at close quarters. In an advertisement poster the artist deliberately exaggerates qualities of colour, line and mass in order to catch the eye of the passer-by and hold him for just a few seconds, throwing all his powers of attraction into those qualities and giving all the cream at once, as it were, so that it can be absorbed by the spectator without any loss of time. But for a picture which is to hang up in our house and at which we shall look again and again we need a quieter tone and less aggressive qualities; something which we can ignore, except as an essential part of our background, when we do not feel in the mood for it, and to which, on the other hand, we can turn for restful pleasure when we are so inclined. And so it is with every form of decoration. If there is too much of it, or it is too blatant, we shall tire of it when we have to live with it day after day.

* * * * *

More and more does it become necessary to keep a sense of proportion in the number of things we crowd into our rooms. In material things life to-day is so rich, and so many alluring things are turned out from factories, that we have to exercise a good deal of self-restraint to prevent their crowding us out. Individually they may be beautiful, but if they are amassed regardless of available space or the general character of their surroundings the result will be anything but beautiful. The ornaments, vases and flower bowls especially call for discrimination, as these are frequently the sinners, being so easy to pick up cheaply; and, alas, too often become problems when given to us as presents. A sense of proportion must count. There has to be a limit, and so we must sacrifice some of our pretty things in order to give the rest a chance. For when all is said, a sense of proportion is one of the main ingredients of good taste, and as such enters into our lives in all manner of ways.

LADY'S WORK BOX

THIS attractive workbox designed on modern lines would make a useful present. The illustration (Fig. 1) suggests the use of finely figured and pretty walnut veneer with a dark stripy macassar base. Black or white ivorine lines or, better still, green celluloid lines, are inlaid around, and on top of the lid a similarly coloured inlaid diamond centre. Mahogany with a small roe would make an excellent alternative.

The Cutting List is as follows :—

	ft.	ins.	ins.	ins.
2 Sides	1	0	6½	⅞
2 Ends	0	9	6½	⅞
1 Top	1	0	9	⅞
1 Bottom	1	0	9	¼
1 Tray bottom	0	11¼	8¼	⅞
2 For edges	1	8	1½	⅞
2 Divisions	0	8¼	1½	⅞
1 Division	0	7	1¼	⅞
1 For base	3	7	1	½ bare

THE SIZE is 12 ins. long by 9 ins. wide, and a height of about $6\frac{1}{2}$ ins. For the box sides and ends use good straight-grained wood, $\frac{5}{16}$ in. thick. If veneer is to be applied, through dovetailed joints would be stronger (Fig. 5), being concealed afterwards by the veneer. The box should be made $6\frac{1}{4}$ in. high to include the rim of the lid, the rim being afterwards sawn away from the box after it is together, the top on, and inlaid. This ensures a perfectly even, close fit all round. If dovetailed, note the small dovetail at the top to allow the cut to be made without weakening the joint (Fig. 5). Alternately, housed or mitre halved joints could be used, glued and strengthened with a few panel pins. See the sectional plan at Fig. 5. The lid is veneered, moulded and glued to the rim and fixed with panel pins punched in and the holes filled. The

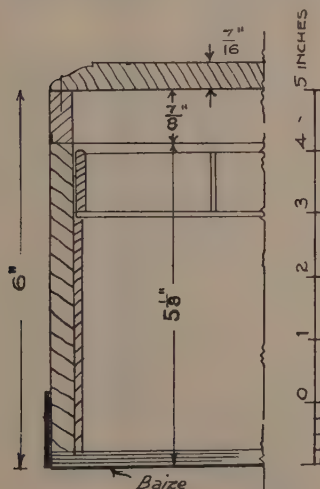


FIG. 2.—SECTIONAL
ELEVATION.

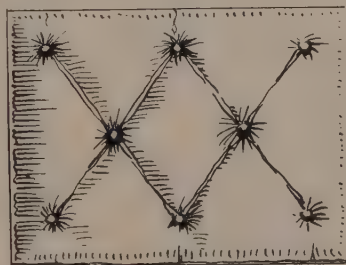


FIG. 3.—PADDED BOTTOM.

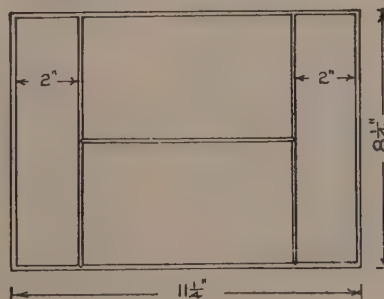


FIG. 4.—PLAN OF TRAY.

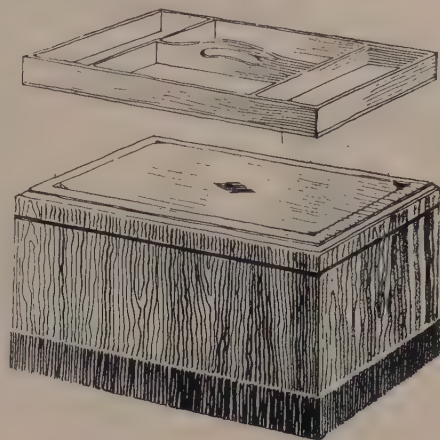


FIG. 1.—LADY'S WORKBOX. SIZE,
12 IN. BY 9 IN. BY 6½ IN. HIGH.

are concealed by the base facings, $\frac{1}{8}$ in. thick, veneered with a cross grained macassar.

THE INSIDE TRAY should be made as light as possible. Mahogany, $\frac{3}{8}$ in. or $\frac{1}{2}$ in. thick, may be used, mitred and keyed at the corners or neatly dovetailed. The bottom is $\frac{1}{2}$ in. thick, glued and pinned to the tray sides. The divisions (Fig. 4) are slipped in loosely into V-cut grooves. The tray is supported by lining slips about $\frac{3}{16}$ in. thick at each end of the box (Fig. 2).

THE INTERIOR could be padded and covered with silk, and Fig. 3 suggests a quilted and buttoned bottom. Thin plywood or cardboard would serve as a base, evenly covered with wadding. Silk is then stretched over the whole, the edges being

glued down to the under-
side. Small silk covered
buttons are then stitched
through at intervals. As
the effect of the box de-
pends largely on colour
the polishing should be
done with care. Cover
bottom with baize. (434).

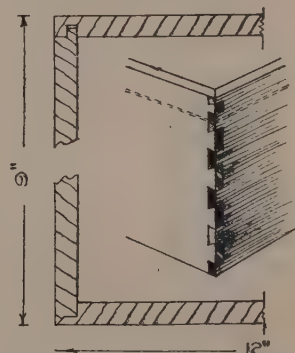


FIG. 5.—SEAT PLAN AND DOVETAILED CORNER.

bottom is of $\frac{1}{4}$ in. thick plywood, screwed to the box with very fine screws. The edges

GRANDMOTHER CLOCK

A GRACEFUL DESIGN ON MODERN LINES

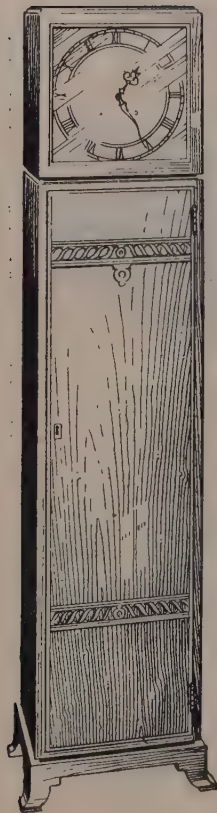


FIG. 1.—MODERN GRANDMOTHER CLOCK. HEIGHT, 4 FT. 6 IN.

THIS small type of clockcase is more suitable for the modern house than its larger, if more dignified, mate the grandfather. Apart from considerations of actual space, however, few movements of to-day are driven by weights. Consequently, the great height is no longer necessary. Indeed, the only justification for the tall body is that space for the pendulum and the gongs is required.

THE CASE shown in Fig. 1 is for a movement with a dial 10 ins. wide. Many dials are rather smaller than this, and, in the event of one of these being used, a light framing should be made and fixed behind the door, rather than reducing the over-all width of the case. A similar arrangement should be followed when a circular dial is fitted, a mitred frame with a round hole in it being provided.

No special method of fixing is given in the accompanying illustrations because movements vary a great deal in detail. It is usually necessary to provide a sort of platform on which the movement can rest. In any case, holes have to be bored through the shelf to allow space for the pendulum and gongs. It may be necessary in some instances to cut one large hole in the shelf, to allow the whole to be passed through. In other movements, slots cut in from the back of the shelf may be required, the movement being passed in from the back. These points the reader can decide for himself in accordance with his particular movement.

THE STYLE is sufficiently indeterminate for any of the hardwoods to be used. Main sizes are given in Fig. 2, and the general construction in Fig. 3. The first point to notice is that the hood and lower part are made in one. There is no advantage in making it in two as there is no break beneath the hood. Simple tongued and grooved joints are used for the top joints. The shelf is fixed with bare-faced dovetails running from back to front, and the bottom

has simple lap-dovetails.

PREPARE THE ENDS first. They extend from beneath the thumb mould at the top (plus the tongue) down to the channel mould just above the plinth. Plane both to the exact over-all size and mark out the joints and the set-back portion at the top. The latter equals the thickness of the door in its depth.

MARK OUT THE TONGUE at the top with the gauge. As the top is $\frac{1}{4}$ in. thick it should be about $\frac{1}{2}$ in. long. The bottom, having plain lap-dovetails, calls for no particular explanation except that the lap must be extra thick because of channelling to be worked at the outside. If the reader does not care to tackle such short dovetails he can let them run right through to the bottom of the channel, and lay a strip of veneer to hide the end grain.

DETAILS OF THE SHELF JOINT are given in Fig. 4. It looks more complicated than actually it is, the channel on the outside giving it an involved appearance. The best plan is to ignore the channel for the moment except as it affects the position of the dovetail. The inset sketch in Fig. 4 makes the position clear. Notice how the dovetail is placed below the channelling. It is stopped at

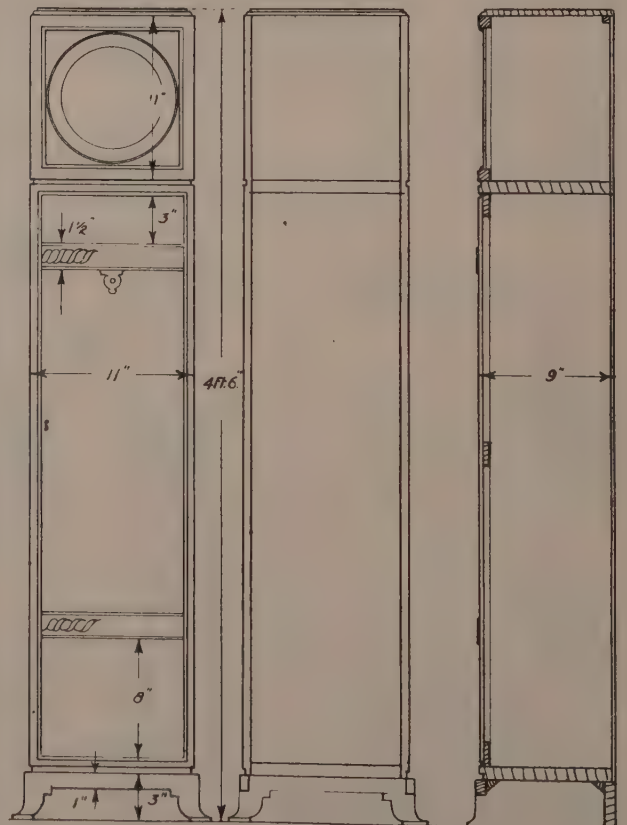


FIG. 2.—ELEVATIONS AND SIDE SECTION.

the front but runs right through into the rebate at the back.

FOR THE SHELF AND BOTTOM use $\frac{7}{8}$ in. stuff. The top is $\frac{1}{2}$ in. thick. Note that the grooves in the top are stopped at the back level with the rebate in the sides. At sides and front it reaches only to the extent of the edge of the thumb mould, not to the over-all size of the carcase. It will be noticed that the shelf finishes level with the rebate at the back. As the channelling across the ends is level with the top of the shelf, it takes the form of a rebate when continued across the shelf. The same idea applies at the bottom, except that the rebate is at the bottom, not the top edge.

THE PLINTH.—After assembling, clean up the joints and fix the plinth. This is made up as a complete unit in itself, as in Fig. 5. The front corners are mitred and the back is butted. To form the shaped toes, blocks (also mitred) are glued underneath. These are shown to the left in Fig. 5. The right-hand side gives the finished toes. Glue blocks rubbed in the angles strengthen the whole. Fix the plinth with glue and screws, and put in a few glue blocks.

LOWER DOOR CONSTRUCTION is given at Fig. 6. A light framework is made, and a sheet of veneered plywood glued to the face. The plywood stands in all round and thin fillets are glued in. This gives the channelled effect. The cross decorations are frets. Ball ended hinges are recommended for hanging the door. The top door is a plain rebated frame with a thumb mould around the edge. It is important that it makes a good fit so that it lines up with the main body.

CUTTING LIST:—

		Long. ft. ins.	Wide. ins.	Thick. ins.
2 ends	...	4 3	9 $\frac{1}{2}$	$\frac{1}{2}$
1 top	...	0 11	9 $\frac{1}{2}$	$\frac{1}{2}$
1 shelf	...	0 11	9	$\frac{1}{2}$
1 bottom	...	0 11	9	$\frac{1}{2}$
1 back	...	4 3	11	ply.
2 stiles	...	0 11 $\frac{1}{2}$	1 $\frac{1}{2}$	$\frac{1}{2}$
2 rails	...	0 11	1 $\frac{1}{2}$	$\frac{1}{2}$
2 stiles	...	3 2 $\frac{1}{2}$	2 $\frac{1}{2}$	$\frac{1}{2}$
3 rails	...	0 10	2 $\frac{1}{2}$	$\frac{1}{2}$
1 panel	...	3 2	10	ply.
1 plinth front	...	1 0	2 $\frac{1}{2}$	$\frac{1}{2}$
2 plinth sides	...	0 10	2 $\frac{1}{2}$	$\frac{1}{2}$
1 plinth back	...	0 11	3 $\frac{1}{2}$	$\frac{1}{2}$

Small parts are not included in the list. (413)

BEDROOM FURNITURE DESIGNS.—*New and Revised edition*; complementary to "Modern Bedroom Suite Designs" published a few months ago. The new issue includes one complete modern suite in oak (bedstead, wardrobe, dressing chest and tallboy); otherwise the volume is devoted to attractive and useful single pieces which from time to time, the average home furniture maker is anxious to make. These comprise Queen Anne and other bedsteads, fitted and other wardrobes, dressing chest with wing mirrors, various types of chests of drawers, bachelor's cabinets and chests, child's cot with drop side, adjustable lounge chair bed, bedside reading table, tallboy, wardrobe, etc. Crown 4to., 48 pages, price 2/6 net, Evans Bros. Ltd., Montague House, Russell Square, London W.C.1.



FIG. 3.—
SKETCH OF
GENERAL CON-
STRUCTION OF
CARCASE.

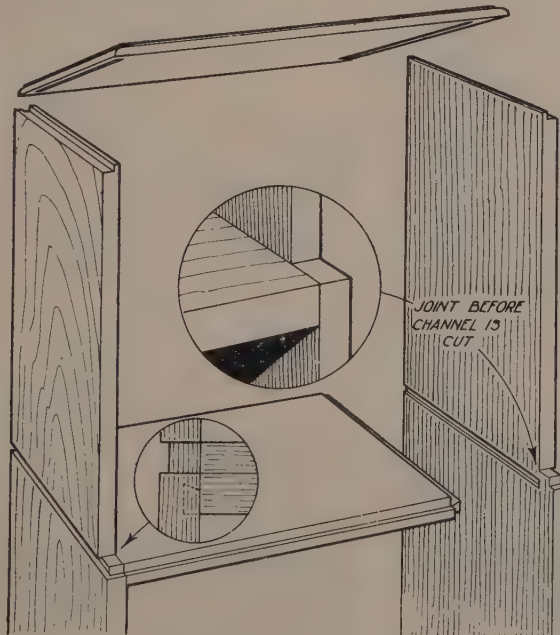


FIG. 4.—DETAILS OF UPPER JOINTS.

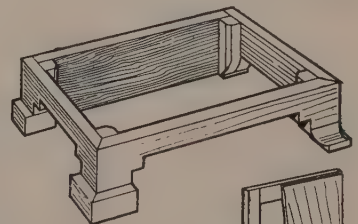


FIG. 5

FIG. 5.—
SKETCH
OF
PLINTH.



FIG. 6.—DOOR.

THE CRAFTSMAN

SOME LESSER KNOWN TOOLS

A FEW days ago we had a letter from a student-reader in India who admitted that he was hopelessly nonplussed at a recent woodwork examination in which he was asked to sketch and describe a "Riffler," and to state for what purpose such a tool could be used. At Fig. 1 is illustrated a riffler file, a type of abraiding tool which is made in a variety of sizes and curves and which was used to good purpose by the woodworkers of the old school for rasping and filing-up quarter circle mouldings or other segments of sweep work. It was, of course, the usual practice to plane and carve up the mouldings by hand to the approximate shape, after which the slight inequalities were rasped, filed and glasspapered to the desired finish.



FIG. 1.—THE RIFFLER.

A glance at the illustration will clearly show that one end of the tool is cut as a file, whilst the opposite end is indented to form a rasp; moreover, the tool can be used to deal with either convex or concave surfaces. A good example to quote for the use of a riffler is a cornice moulding having internal quarter circle sweeps.

Rifflers can be obtained in assorted patterns and cost approximately 2s. 6d. each. Owing to the major portion of sweep mouldings now being worked on the vertical spindle machine there is not much call for this tool in the modern workman's kit; nevertheless the judicious use of a riffler has special advantages when working concave surfaces on restricted areas where no other tool can be conveniently applied.

DRAW KNIVES.—Another handy tool which is little used by the ordinary worker is the common draw knife, and the method of using this tool is given at Fig. 2. It is grasped firmly by the hands and it may be used either ground side up, or ground side of the blade in contact with the wood, according to the job to be tackled. A six or eight inch tool of this type in the hands of the home worker will save a tremendous amount

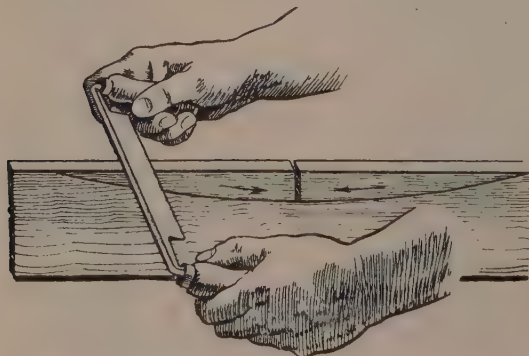
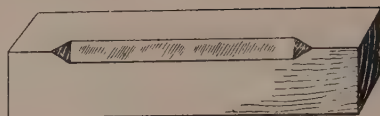


FIG. 2.—METHOD OF HOLDING DRAW KNIFE.

FIG. 3—
STOP
CHAMFER.



of rip sawing especially when from $\frac{1}{4}$ in. to $1\frac{1}{2}$ in. has to be quickly removed from the edge of, say, an inch pine, red deal, or canary wood board. When the tool is used with its ground side to the wood it always has a tendency to rise out of the timber and there is little or no risk of slashing away the wood beyond the predetermined mark.

The tool may be used to rough down either straight or curved edges. For roughing in flat curves, it is much quicker than bow-sawing to the line. For an internal curve (such as is shown in the illustration) simply cut into the wood a saw kerf at or about the centre of the shape, and then begin to use the draw knife from right and left as indicated by the arrows until the required line is almost reached. Finish up the edge of the shaping with a sharp spokeshave, etc.



FIG. 4.—WHEELER'S BRUZZE.



FIG. 5.—DRAWER LOCK CHISEL.

For rough and rustic carpentry the draw knife is a valuable tool, and in steady hands an excellent job can be made of stop-chamfering as at Fig. 3. Speaking of chamfering, it is now generally accepted amongst craftsmen that a chamfer is cut at 45 degrees; whereas a bevelled-edge is planed or worked away at an angle of either more or less than 45 degrees. The writer has on more than one occasion seen a workman rough out a piece of 3 in. Jacobean twisted turning with nothing but a draw knife and leave the work ready to be rasped and glasspapered to a finish.

THE BRUZZE.—Yet another tool which has some advantage over the ordinary pattern chisel is the bruzze, sketched at Fig. 4. When cutting a mortise or similar cavity with a chisel, the worker has to take a series of cuts to clean out the corners. If a steel bruzze be used the workman can, owing to the peculiar formation of the end of this tool, cut away the right-angled corner at one malleting operation. It is somewhat surprising that neither the joiner nor cabinetmaker uses this class of tool to more advantage; especially so when working at piece work prices. A

(Continued on Page 361).

CHRISTMAS PRESENTS

THE EDITOR'S ANNUAL COMPETITION

FOR over twenty-five years I have never been without a Waterman's fountain pen, and when at a loss to select some useful Christmas present for a friend I invariably fall back on one of these indispensable pocket companions. My own pen has saved me time and money beyond calculation, and I am fairly safe in adding that it has repeatedly saved me from a nervous breakdown.

This is why, in connection with a simple Christmas Competition of special interest to woodworkers, I have decided to offer handsome sets of self-filling Waterman pens and pencils. The following three prizes are awarded for the most accurately shown solutions of the two problems given below:—

FIRST PRIZE.—A Waterman's gold-mounted self-filling Pen in two tone colours, with Pencil to match, in case, value 43s.

SECOND PRIZE.—A Waterman's gold-mounted self-filling Pen with Pencil to match, in case, value 35s. 6d.

THIRD PRIZE.—A Waterman's self-filling Pen, with Pencil to match, in case, value 20s. 6d.

These I will despatch to winners in ample time for Christmas so that, if already equipped with Waterman pens, they can make use of them as handsome and acceptable gifts to friends.

THE EDITOR.

PROBLEM NO. 1.—Take a piece of thin plywood or fretwood and square it up to $7\frac{1}{2}$ in. by $1\frac{1}{2}$ in. On this piece of wood make FOUR cuts with your tenon saw so that the pieces, when properly arranged, will make a solid and perfect square.

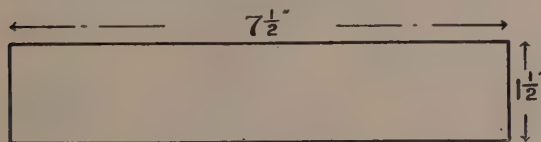


FIG. 1.

IF FOUR CUTS ARE MADE ON THE ABOVE PIECE OF WOOD (FIG. 1), THE PARTS CAN BE ARRANGED TO FORM A SQUARE (FIG. 2).



FIG. 2.

The solution may be drawn either on the diagrams given here or on a separate piece of paper or card. Mark your saw cuts on Fig. 1. On Fig. 2 (the square) show how the pieces will fit.

PROBLEM NO. 2.—A joiner's apprentice had to fill (with wood) an opening measuring 12 in. by 9 in. wide. He was given a board, size 18 in. by 6 in., with instructions to cut it into only TWO

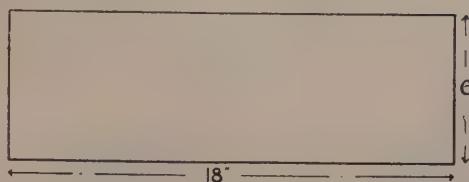


FIG. 3.

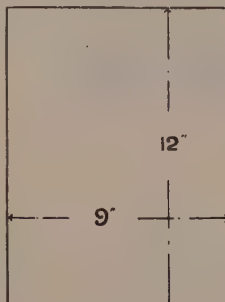


FIG. 4.

THE ABOVE BOARD (FIG. 3) CAN BE CUT INTO TWO PARTS SO THAT BOTH WILL EXACTLY FILL THE OPENING SHOWN IN

FIG. 4.

pieces and completely fill the space. He did it; but how?

On Figs 3 and 4 show the dividing lines.

There is no "snag" in either problem; both are straightforward geometrical exercises.

To win a prize, *both* problems must be correctly solved. Accuracy in showing the solutions will necessarily be considered in determining the awards. Obviously, no correspondence can be entered into with competitors, and the decision of the Editor will be final.

The closing date of entry is Wednesday, 10th December.

Write "Problem" on top left hand corner of envelope and address: The Editor, "The Woodworker," Montague House, Russell Square, London, W.C.1.

The Craftsman

(Continued from page 360).

bruzze is usually about 14 in. in length and made to suit mortises ranging from $\frac{3}{4}$ in. to 1 in.

DRAWER LOCK CHISEL.—Another neglected tool especially in the hands of the amateur is the double-ended drawer lock chisel (Fig. 5).

How often one will see the amateur endeavouring to cut a recess for the bolt of a till lock into the underside of a drawer bearer with a chisel which is too long to go between the bearers. The result is a mortise too large for the bolt and crooked even at that. A double-ended drawer lock chisel at a cost of 1s. will give a neater and better job with half the amount of labour.

Occasionally one sees a home-made lock chisel which is usually forged out of an old file; one end is made as at A (Fig. 5); the other end is formed as at B. The wide or spade end B is, of course, used to cut the sides of the mortise and the narrow end cuts the ends.

(451)

SETTEE CONVERTIBLE INTO BEDSTEAD

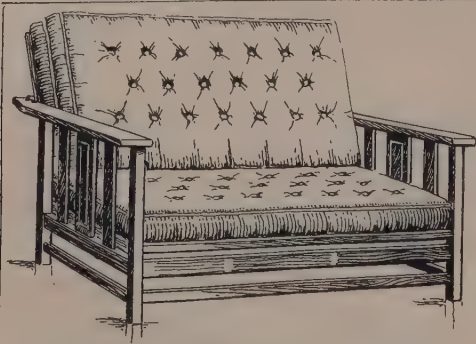


FIG. 1.—SETTEE (4 FT. 6 IN. OVER ALL).

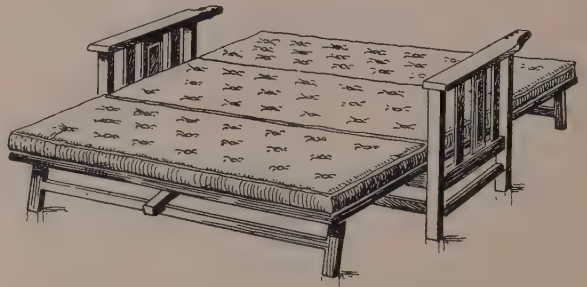


FIG. 2.—CONVERSION INTO BEDSTEAD.

As a settee for lounge use the oak piece shown at Fig. 1 will be found comfortable and inviting, and the extra cushion shown at back can be transferred to the seat for those who prefer something of a sumptuous result in this way. As a bed the appearance of the settee will be as Fig. 2, the opening out being of the simplest description and speedily effected.

The main dimensions, excluding cushions, are: Height of seat over framings, 9 ins.; height of arms, 1 ft. 11½ ins.; height of back framing from ground when vertical, 3 ft.; length of seat over upright, 4 ft. 2 ins.; length over arms, 4 ft. 4 ins.; width of sides over uprights, 2 ft. 4 ins.; length of arms, 2 ft. 11½ ins.; length of back, seat and foot frames, 3 ft. 10 ins.; width of back and seat frames, 2 ft. 3 ins.; width of foot frame, 1 ft. 11 ins. net; and with stop extensions as required.

The obvious wood to select is oak, stained to a rich nut-brown colour and bright polished or fumed. Where existing furniture has to be matched in a first-class manner walnut or mahogany may be substituted; or, with an eye to economy, either birch or beech will come readily to mind. It might be serviceable to draw attention to the capital result that can be obtained by staining birch to an antique brown colour and bright polishing.

THE LEGS (A, Fig. 3) require four pieces of 2 ins. by 2 ins.; the length given in cutting list allowing a shade for paring in finishing to include a stub-tenon at top end to enter arm. Mortises should be cut for the seat and lower rails, and the legs may be mounted on castors, making an allowance of 1½ in. in height when setting out the working drawing.

THE ARMS (B) finish 3½ ins. by ¾ in., and have the edges slightly rounded away for comfort. When fitted in position they project 1 in. on the outer side and ½ in. on the inner, and 1 in. in front which would allow 6½ ins. net for adjustment projection of the arm at back when finished. Just behind the back upright the arm is reduced to 2½ ins. as on Fig. 6.

THE SEATRAIL (C) takes two pieces to finish

2½ ins. by ¾ in., tenoned or doweled to legs, and similar rails (G) are fitted to legs at same level front and back. A stretcher rail running between front and back rails may be dovetailed in if desired. The underframing rails (D) and corresponding rails (H, Fig. 4) fitted to sides and front respectively may finish 1½ in. by ¾ in. net.

THE PANELS (E, Fig. 3) between arms and seat rails have a sight height of 13½ ins., and are fitted into position with ½ in. stub tenons top and bottom, the net finished width being 4½ ins., using ¾ in. or ⅝ in. thickness as preferred. The panelled effect can be of applied mould glued and pinned on. If this main framing is carefully put together a substantial and lasting result will be obtained. The separate framings for back, seat and foot ends forming the cushion rests may next be dealt with, and a nicely smoothed finish with the edges slightly rounded away will afford the best effect.

BACK FRAME.—Reference to Fig. 5 will show that the whole back frame is hinged to back edge of seat frame, and supported at a convenient angle by an adjustment rod behind in the slotted arm as Fig. 6. Two outer stiles and one centre stile will be required to finish 1½ in. by ¾ in., and also two rails to finish 3 ft. 10 ins. by 1½ in. by ¾ in. This allows for jointing and clearance between the arms so that the framing may fold down between for portability. These should be mortised and tenoned together and pinned. The slats or laths may be anything between 1½ in. and 3 ins. wide, and finish ¾ in. thick, stubbed into top and bottom rails and equally spaced.

This should result in a firm but light rectangular framing, which, when lowered to seat level, will be supported by strut feet which fold between the inner edges and stiles in the manner indicated at Fig. 5. These strut supports (L, Fig. 6) take two pieces 12½ ins. by 1½ in. by ¾ in. of hardwood and are bolted right through I and L with ¾ in. round-headed bolts with the heads sunk and nutted on the inside so that they pivot freely without play.

THE STRETCHER RAIL between may be of same

substance as the legs, tenoned and pinned in. When the strut support is lowered and bearing the frame it is held in position by means of a clutch (M), which is of $1\frac{1}{8}$ in. by $\frac{7}{8}$ in., or $1\frac{1}{4}$ in. by $1\frac{1}{4}$ in. thickness in the length and with a $1\frac{1}{4}$ in. projection at the extremity to pass over the stretcher rail and grip it. This clutch is hinged to the lower rail of framing and of a length to butt closely between the rails. This position, approximately, for bolting the strut to framing will leave a space between framing and top of strut leg of $2\frac{1}{2}$ ins. or $4\frac{1}{8}$ ins. from outer edge of framing, which indicates a position which should be suitable for allowing the clutch to overlap and grip the strut rail. A section at N (Fig. 6) shows how the bolt is entered.

THE SEAT FRAME is of the same dimensions as the back. It may be made with 3 ins. by $\frac{3}{4}$ in. laths, which will be sufficiently thick to give a bearing whilst wide enough to be comfortable. Seven laths are indicated, and the centre and thicker stile is omitted, but the finished effect of the whole thing will be better if this frame is fitted with an equal number of laths to the back frame, with an extra one to replace centre stile.

THE FOOT-END FRAME itself is 1 ft. 11 ins. wide only, but otherwise put together with stiles, rails and laths in a similar manner to the back. This foot-end frame lies loosely under the seat frame, and when home lies flush with the front of the seat frame. When extended it drops into position flush with the seat frame. The latter rests upon two stop-fillets 2 ft. 3 ins. by $1\frac{1}{4}$ in. by $1\frac{1}{4}$ in., screwed to under side of stiles and with a similar projection to that indicated for the clutch which will stop against the seat rail (G, Fig. 4) and prevent the foot frame from dropping out of position. The total length of the frames when let down horizontally will thus be 6 ft. 5 ins. In Fig. 6 the strut support is shown in action.

In Fig. 1, it may be said, the foot rail is omitted to show more clearly the position of its entry. When being drawn out or pushed home it travels on fillets screwed to each of the side rails (C) in a similar manner to a drawer runner.

A CUTTING LIST is attached with the lengths slightly on the full side (in most instances) to allow for finishing; width and thicknesses are net.

(See Cutting List on page 366).

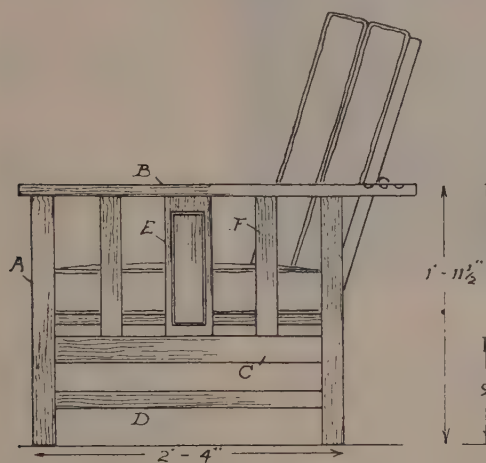


FIG. 3.—END ELEVATION.

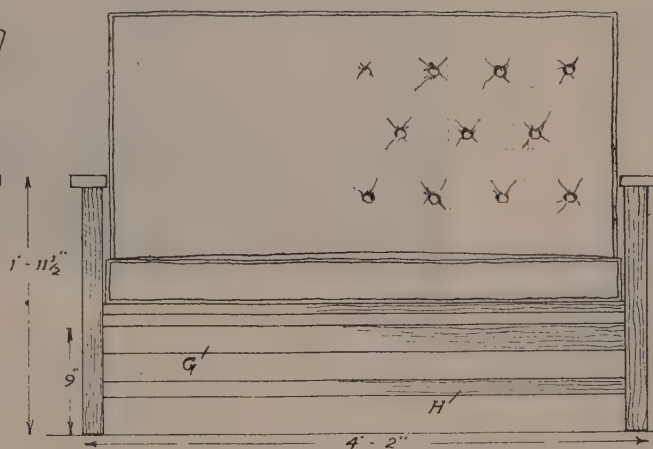


FIG. 4.—FRONT ELEVATION.

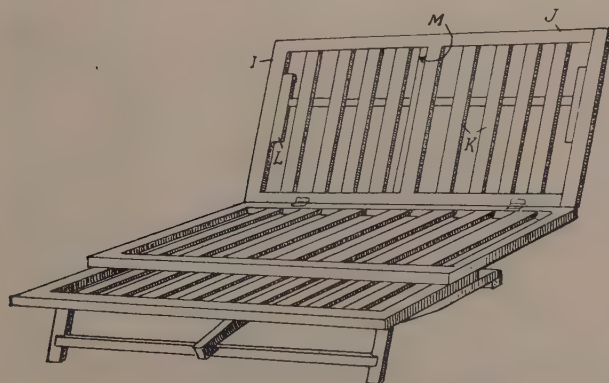


FIG. 5.—GENERAL VIEW OF FRAMEWORK.

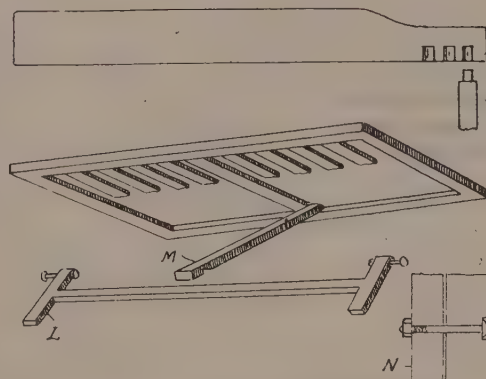


FIG. 6.—ARM AND DETAIL OF BACK FRAME.

IDEAL FOR SMALL LIVING ROOMS

FOUR-FOOT SIDEBOARD

A NEAT AND COMPACT SIDEBOARD which will work out pleasingly for the small cottage or flat to a size of 4 ft. as shown (or 3 ft. 6 ins. if preferred) is illustrated here, the design being suitable for making up in oak. Reliance is placed more upon a selected run of grain nicely matched up than upon any applied ornament, although a length of this may be introduced immediately under the table top in the manner indicated, together with a device upon each door to give it extra character.

Two 4 in. drawers are included, with a cupboard under each fitted with centre division and either one or two shelves as may be required. In finishing, present day manner leans rather towards retaining the natural colour or a mere shade or two darker, whilst a certain pleasing and notable effect is produced by the limed or weathered oak treatment, although many still prefer darker or antique colouring. In cases where other furniture has to be matched walnut may be wax-polished, whilst mahogany again may be either finished much to the natural colour or the surface reduced to the more general deep plum colour which is, perhaps, more successful.

POSTS.—In getting out the parts, the end uprights at front (A) are allowed a full length in cutting list. The tops are rounded off from all four sides and the outer edge worked with a chamfer which starts on a level with the top of drawer and continues straight to ground; a corresponding chamfer is worked on the inner angle of leg immediately below the bottom brackets of carcass front. These uprights will require mortising for the various rails as they occur at front and ends, in addition to being grooved to receive the carcass ends, these being cut with the grain to run perpendicularly.

THE ENDS may be made of $\frac{3}{4}$ in. solid stuff, preferably grooved and put together with cross-cut hardwood tongues when glueing up, in which case the top edge might have the end grain merely rounded or moulded to an astragal section. The alternative method (indicated at Fig. 4) shows the ends as made up with a top rail (B) and corresponding bottom rail (D), between which

the end (E) is tongued in. The rail enters uprights with a stout tenon to each rail, and between these mortises the leg will be grooved to receive the end (E) which is also doweled for a stiffening hold. Where it is preferred to cut the ends with the grain running horizontally the part may enter front and back uprights with about six tenons each side. It will be noted that the top rail (B) is also grooved and the bottom rail (D) lined up inside with an extra slip to which reference will be made later.

THE CENTRE DIVISION (F) will be cut to finish close under table top when in position, in addition to having a tenon above and below to enter top and bottom rails right through and be wedged; a mortise also will be cut in line with

bearer rails, whilst the bottom edge can be fitted with a fillet about 3 ins. wide which, in addition to being screwed to under edge of F, will also be tongued into front rail (I) and a corresponding back rail.

THE TOP RAIL (G) enters uprights with a stout tenon to be pinned, in addition to which it is mortised for the tenon on F to enter right through and be wedged. A similar rail can be fitted at back, or the division (F) can be screwed through from car-

case back, in which case this back rail could be omitted.

THE BEARER RAILS (H) are of equal width with the uprights, which they enter with a pair of tenons, in addition to a tenon $\frac{3}{4}$ in. in length to enter and butt in the inner division. The joints are pinned and the inner edges grooved.

THE BOTTOM RAIL (I) is tenoned into position and also mortised for division to be tenoned in, whilst in a simpler manner the inner division may be secured in position to both top and bottom rails by entering a length of dowel after boring the necessary holes top and bottom and so dispensing with both mortise and tenon.

THE CARCASE BOTTOM (J) can be fitted in two pieces to drop into position upon the lining slips before mentioned, the outer corners being notched to fit round legs so that the bottom when bedded home lies close up behind the door for which it will form a stop.



FIG. 1.—COMPACT 4 FOOT SIDEBOARD WITH TWO DRAWERS AND TWO SPACIOUS CUPBOARDS. HEIGHT (TO TABLE) 3 FEET.

THE DOORS (K) should be made up of boards of $\frac{1}{2}$ in. thickness, these again being preferably grooved to receive cross-cut hardwood tongues when glueing up. In putting the pieces together also a roving eye might be kept upon the run of the grain, whether the boards are reversed or not, so that this feature may be pleasingly matched up, the idea being to get a play of natural figure in the wood between the vertical slips seen in Fig. 1.

The joints in the door made in this way may be overlaid by upright facing slips (L) which will stiffen the joints and at the same time form a neat but pleasing effect in the *tout-ensemble*, if the edges of slips are bevelled or merely rounded off.

Alternatively the door may be put together by clamping with 2 in. clamps tongued on top and bottom; or, again, by mitre-clamping to finish all flush so that the upright slips (L) may be added. This latter method, if carefully executed, will give a door in the best manner.

In hingeing the doors these should be recessed very slightly to allow the slips to finish about flush with the rails top and bottom.

THE DRAWER FRONTS (M) will also have slips to agree. A type of drop handle with square plate would be suitable for selection, but whatever design may be chosen care should be taken to obtain only a handle which has a bolt to pass right through the drawer front for nutting securely inside. If a lock is desired to the

drawers the two-lever variety is suitable. The drawer runners (N) will be tongued and grooved to enter bearers and allow a dustboard of plywood to be pushed home from the back, a corresponding rail to H being afterwards entered and so complete a framing here.

THE CUPBOARD SHELVES (O) are notched into position to fit round uprights and bed upon the ledges (P) screwed into position to receive them.

THE CARCASE BACK may next be put in hand, this being made up of one centre and two outer uprights, with a rail of equal width below and a wide rail above to back the drawer casing, the whole being mortised and tenoned together and grooved for plywood panels. Another method of fitting this back is to tenon the uprights into the rails top and bottom, the latter being of sufficient length to be dovetailed into the back uprights and screwed.

By way of finish a narrow back rail is added, this being tenoned into position to back uprights and reduced slightly in width, starting 4 ins. from each end. It carries a panel about 9 ins. long with incised line applied in centre.

THE TABLE TOP (R) is shown as moulded ovolo with the corners notched to fit round uprights and be grooved into top rail (B). It is further secured in position by screwing from under front and back rails and may also be glue-blocked to the rail B if desired.

The small shaped front base brackets (S) are

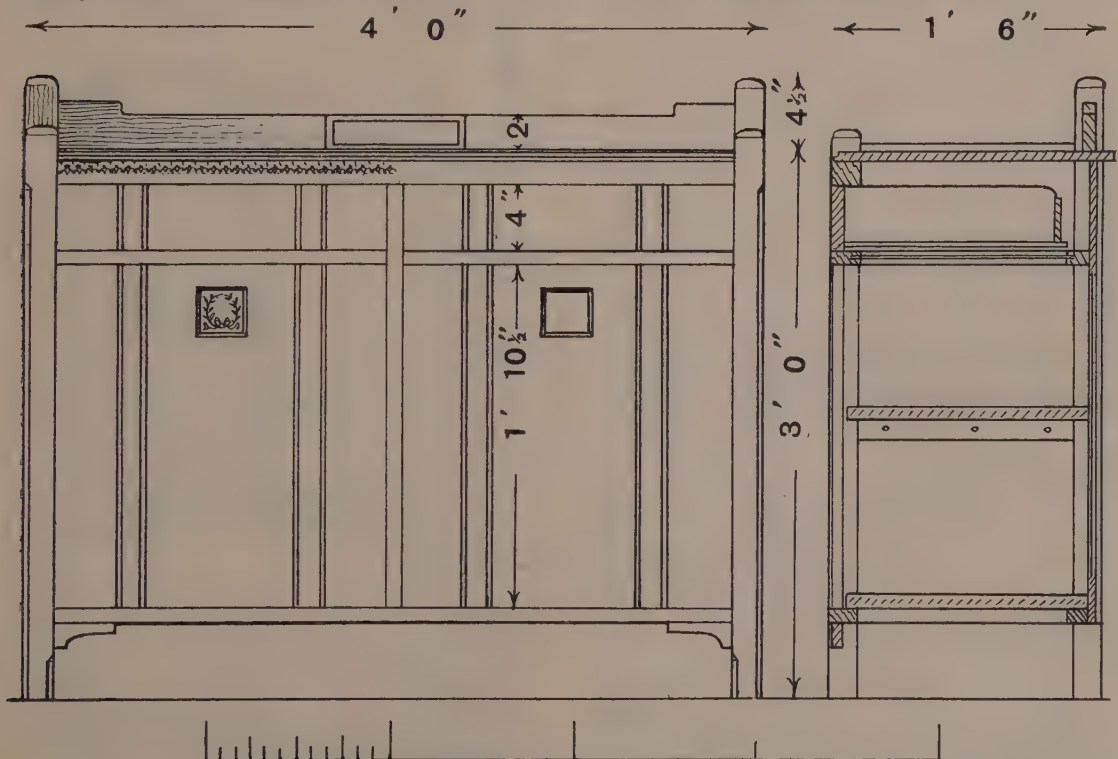


FIG. 2.—FRONT ELEVATION OF SIDEBOARD WITH SCALE.

FIG. 3.—END SECTION.

stubbled into position to uprights and screwed through to rail I, by way of finish; such brackets may be repeated under ends if preferred; or, if the ends are cut from the solid, the bottom edge may be shaped up to agree in line.

It will be noticed from Figs. 1 and 2 that relief is added under table top and also on doors. Various types of strip decoration are obtainable for this purpose in lengths for cutting as required. Suitable frets in thin plywood, or (alternatively) embossed wood pateras or other ornaments, are obtainable from dealers in woodworking sundries.

CUTTING LIST:—

	Long. ft. ins.	Wide. ins.	Thick. ins.
A Two front uprights ...	3 2	2	$\frac{7}{8}$
B Two top rails ...	1 6	3	$\frac{7}{8}$
C Two back uprights ...	3 5	2	$\frac{7}{8}$
D Two bottom rails ...	1 6	3	$\frac{7}{8}$
E Two ends to fit ...	2 3	18	$\frac{7}{8}$
F One inner division to fit	2 6	18	$\frac{7}{8}$
G One top rail ...	4 0	$1\frac{1}{2}$	2
H Two bearer rails ...	2 0	2	$\frac{7}{8}$
I One bottom rail ...	4 0	2	$\frac{7}{8}$
One back rail ...	4 0	2	$\frac{7}{8}$
J One carcass bottom to fit	4 0	18	$\frac{7}{8}$
K Two cupboard doors to fit	1 11	23	$\frac{7}{8}$
L Four facing slips ...	1 11	2	$\frac{1}{2}$
M Two drawer fronts to fit	1 11	4	$\frac{7}{8}$
Four facing slips ...	0 4	2	$\frac{1}{2}$
Sides and backs of $\frac{3}{8}$ in.; bottoms $\frac{1}{2}$ in. or plywood.			
N Four runners ...	1 6	2	$\frac{7}{8}$
Two dustboards to fit, plywood.			
Two back rails ...	2 0	2	$\frac{7}{8}$
O Two or four shelves to fit	2 0	17	$\frac{7}{8}$
P Four slips ...	1 3	$1\frac{1}{2}$	$\frac{3}{4}$
Carcass back			
Two uprights ...	2 7	3	$\frac{7}{8}$
One inner upright ...	2 0	3	$\frac{7}{8}$
One top rail ...	4 0	7	$\frac{7}{8}$
One bottom rail ...	4 0	3	$\frac{7}{8}$
Two plywood panels to fit.			
Q One upper back rail ...	4 0	3	$\frac{7}{8}$
R One table top ...	4 0	19	$\frac{7}{8}$
S Two brackets ...	0 4	2	$\frac{3}{4}$ or $\frac{5}{8}$

All lengths are full to allow for paring and fitting. Widths and thicknesses are net finished dimensions except where noted to fit. (424)

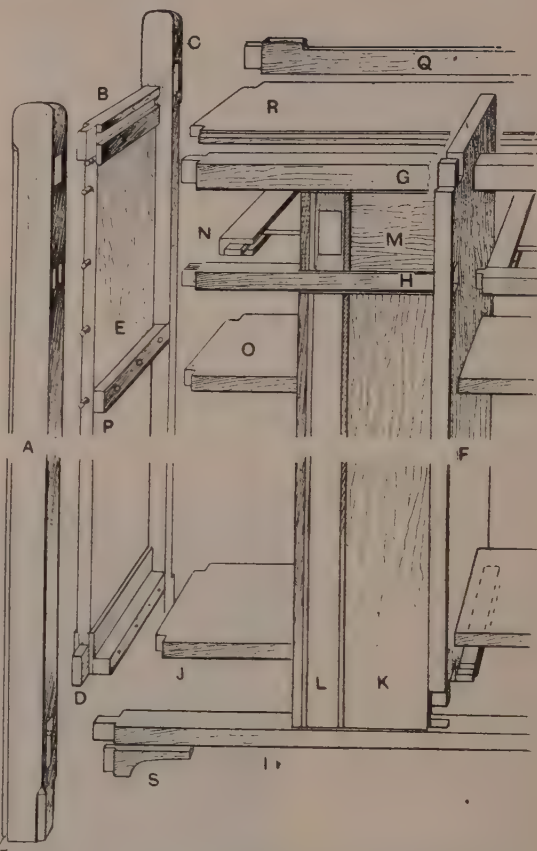


FIG. 4.—GENERAL VIEW OF CONSTRUCTION.

	Long. ft. ins.	Wide. ins.	Thick. ins.
H 1 Front Rail ...	4 2	$1\frac{1}{2}$	$\frac{7}{8}$
1 Back Rail ...	4 2	$1\frac{1}{2}$	$\frac{7}{8}$
Back Frame.			
I 3 Stiles ...	2 3	$1\frac{7}{8}$	$\frac{7}{8}$
J 2 Rails ...	3 10	$1\frac{7}{8}$	$\frac{7}{8}$
K 8 Slats or Laths ...	2 1	$1\frac{7}{8}$ or 3	$\frac{7}{8}$
L 2 Strut Legs ...	1 0 $\frac{1}{2}$	$1\frac{1}{2}$	$\frac{7}{8}$
1 Strut Rail ...	3 9	$1\frac{1}{2}$	$\frac{7}{8}$
M 1 Clutch ...	2 2	$1\frac{7}{8}$	$\frac{7}{8}$
2 Bolts and Nuts ...	0 3	$\frac{3}{8}$	
N 1 Adjustment Rod ...	4 3	$1\frac{1}{2}$	$1\frac{1}{2}$
Seat Frame.			
3 Stiles ...	2 3	$1\frac{7}{8}$	$\frac{7}{8}$
2 Rails ...	3 10	$1\frac{7}{8}$	$\frac{7}{8}$
8 Slats ...	2 1	$1\frac{7}{8}$	$\frac{7}{8}$
Foot Frames.			
3 Stiles ...	2 0	2	$\frac{7}{8}$
2 Rails ...	3 9	2	$\frac{7}{8}$
8 Slats ...	1 10	2	$\frac{7}{8}$
O 2 Stop Fillets ...	2 3	2	$1\frac{1}{2}$
2 Legs ...	1 2 $\frac{1}{2}$	$1\frac{1}{2}$	$\frac{7}{8}$
1 Rail ...	3 9	$1\frac{1}{2}$	$1\frac{1}{2}$
1 Clutch ...	2 0	$1\frac{7}{8}$	$1\frac{1}{2}$
2 Ledges for Seat Frame ...	2 0	$\frac{7}{8}$	$\frac{7}{8}$

Bedstead Settee

(Continued from page 363).

THE CUTTING LIST is as follows:—

	Long. ft. ins.	Wide. ins.	Thick. ins.
A 4 Legs ...	2 0	2	$\frac{7}{8}$
B 2 Arms ...	3 0	$3\frac{1}{2}$	$\frac{7}{8}$
C 2 Rails ...	2 4	$2\frac{1}{2}$	$\frac{7}{8}$
D 2 Rails ...	2 4	$1\frac{1}{2}$	$\frac{7}{8}$
E 2 Panels ...	1 2 $\frac{1}{2}$	$4\frac{1}{2}$	$\frac{7}{8}$ or $\frac{3}{4}$
F 4 Uprights ...	1 2 $\frac{1}{2}$	$2\frac{1}{2}$	$\frac{7}{8}$ or $\frac{3}{4}$
G 1 Front Rail ...	4 2	$2\frac{1}{2}$	$\frac{7}{8}$
1 Back Rail ...	4 2	$2\frac{1}{2}$	$\frac{7}{8}$

THE QUESTION BOX

QUESTIONS only of general interest can be answered in these columns. Readers will kindly note:—(1) Detailed replies or sketches cannot under any circumstances be sent by post; but, as the Editor may require further information, a stamped addressed envelope should be enclosed. (2) Full particulars of what is required should be clearly stated, and (if possible) a rough sketch with over-all sizes enclosed. (3) Questions of purely personal interest cannot be dealt with in these columns.

NOTE.—With each Query must be sent a Coupon (see foot of page iv. of cover). All queries to be addressed: Editor, THE WOODWORKER, Montague House, Russell Square, London, W.C.1.

Oak Bookcase

E. F. H. (Edinburgh) would like some suggestions for the making of an oak bookcase with leaded lights.

REPLY.—As you wish your bookcase to be about 3 ft. wide we suggest a case fitted with three shelves. A spacing between shelves of 10 in. clear is allowed, or this might be reduced to 9 in. clear if desired.

The ends, top and bottom, should be of $\frac{3}{4}$ in. net thickness to be dovetailed together, the back being of $\frac{3}{8}$ in. or $\frac{5}{8}$ in. thickness framing $2\frac{1}{2}$ in. wide; stiles and rails mortised and tenoned together to form a four panel back with plywood panels to be rebated and screwed into position. Width over ends, including thickness of doors and back, may be about 10 ins. The pair doors will be framed up of stiles and rails, $1\frac{1}{2}$ in. wide by $\frac{3}{4}$ in. thick, mortised and tenoned together and pegged.

The leaded lights can be made up by the local glazier from a full size set-out of openings after doors are made. The shelves can, if desired, be made adjustable upon shelf pins or upon saw-tooth ratchets, or a stiffer casing can be made by dovetail-grooving the shelves into the ends, which will entirely obviate any possible chance of sagging in the ends, or of the shelves dropping owing to weight placed thereon. The cornice and frieze indicated to enlarged scale can be

separately made as a framing and be blocked into position. As shown, a $1\frac{1}{2}$ in. section mould can be used with a $\frac{3}{8}$ in. top rebated into position and with a frieze bead mitred along the lower edge of casing top to be returned round ends, thus making up a mount of $2\frac{3}{8}$ in. in height.

Either square tapered, or as shown, cabriole legs can be used in the construction of the stool upon which the case is mounted, height for which might be 7 to 10 in. The rails here should be $1\frac{1}{2}$ in. wide by $1\frac{1}{2}$ in., dovetailed into leg blocks and further braced in inner angles after the manner of a dining room chair, in addition to which, as a stiffening, a stretcher rail can be dovetailed in centre between front and back rails of framing. A section mould as indicated can be mitred round stool for the case to drop into. Alternative suggestions are offered for doors with panels of muffled glass, and on these lines, using mahogany, you should obtain a good result. (392)

Combined Bookcase & China Cabinet

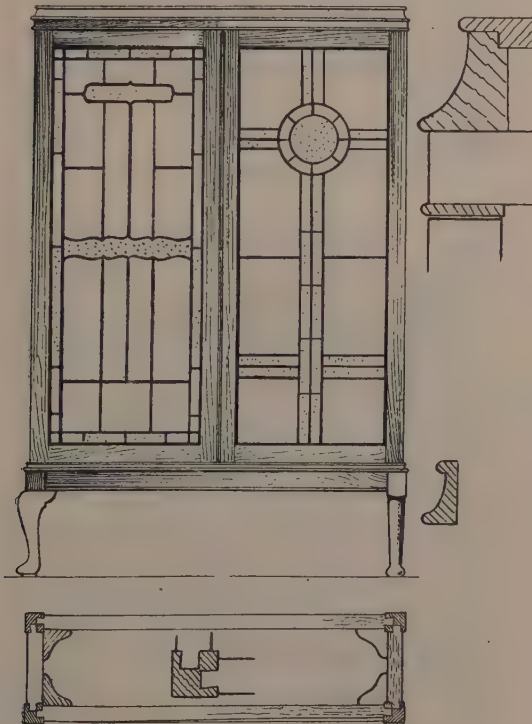
T. E. Mc. (Hastings) wishes to design a small bookcase with china cupboard beneath.

REPLY.—We note the rough sketch enclosed with your letter and think you might work out a pleasing bookcase for your purpose on the lines of our sketch, which, as desired, finishes to a height of 6 ft. by 3 ft. wide, the upper part being 10 ins. deep over all for books and the lower portion, in accordance with your recess, 14 ins. deep, so that all finishes flush.

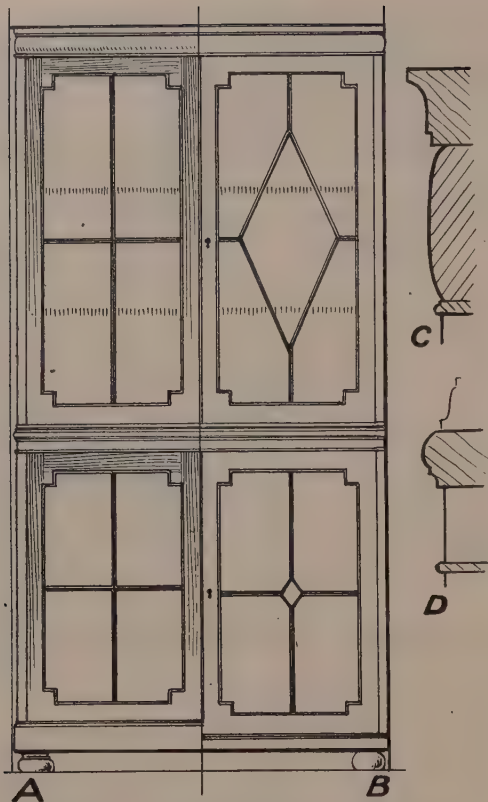
The ends, top and bottom of upper part should be of $\frac{7}{8}$ in. thickness or might, in mahogany, be $\frac{3}{4}$ in. thick net, to be dovetailed together. The frieze may be 2 in. high and the cornice above this $\frac{3}{4}$ in., section to enlarged scale being shown at C. The base of this case might also carry a $\frac{3}{4}$ in. section mould. The doors can be framed up of $1\frac{1}{2}$ in. by $\frac{3}{4}$ in. stiles and rails with $1\frac{1}{2}$ in. squares in the sight angles, the glazing being of 28 oz. glass either in one or four panes or, as shown at B, in five panes, the barring being in this case either of ordinary $\frac{3}{8}$ in. astragal section or of $\frac{1}{2}$ in. by $\frac{1}{2}$ in. flat, mitred together to form the design with a fillet glued behind to form the glazing rebate. If astragal is used, one half this section should be moulded in the solid round the opening.

The lower portion of casing to be used for china may be made of similar material as the top, and in fitting the glazing to doors here an alternative design may be selected, as at B. The plinth might show $2\frac{1}{2}$ ins. high only and be finished on ball feet of the "bun" variety, which can be fitted by screwing to a block in the angles of the plinth and which will also assist in stiffening the plinth framing; or the plinth could be replaced by a finished flush length of $1\frac{1}{2}$ in. section mould. The carcase back might be in four panels above, framed up of $2\frac{3}{8}$ in. by $\frac{5}{8}$ in. or $\frac{3}{4}$ in. stiles and rails mortised and tenoned together and grooved for four plywood panels.

It is possible to make a bookcase for your purpose with upper and lower ends cut in one length of stuff, but your rough sketch does not make it clear that you specially desire this method of procedure. (390)



BOOKCASE WITH LEADED LIGHTS.



BOOKCASE AND CHINA CABINET (T. E. McC.)

High Garden Fence

R. F. F. (West Ealing) asks for a suggestion for a high garden fence to mask another fence from view.

REPLY.—We offer here a couple of suggestions which should have a pleasing effect and could be averaged in length to about 9 ft. to cover the 45 ft. with which you have to deal.

For the main posts, which might finish 8 ft. 6 in. high out of the ground, 3 in. by 3 in. stuff may be used or, if a more substantial effect is desired, 4 in. by 4 in., as in sketch, or 4 in. by 3 in. will serve. The top rail can be cut from 2 in. board to show an equal width with the face of posts, allowing a spring for the curve of about 4 in., to be tenoned into position or halved and screwed to posts when jointing. The mid-rail can be of equal substance and also the bottom rail, which might be raised a matter of about 3 in. above ground.

The panels forming the filling between top and mid-rail may be 3 in. wide by $\frac{3}{4}$ in. thick and the sticks between them $\frac{3}{8}$ in. square, all to be stubbed into position top and bottom.

The lower portion of screen (A) may be of overlapping weather board, or your purpose might possibly be achieved by using boards 3 in. wide and spaced 3 in. apart. The alternative section (B) shows a different shaping for top rail, the main framing being otherwise of same dimensions. In this case a 2 in. by $1\frac{1}{2}$ in. rail is shown above and below the upper filling, which can be halved together in position, using $1\frac{1}{4}$ in. by

$1\frac{1}{4}$ in. material. Two 4 in. by 4 in. by $1\frac{1}{4}$ in. and two 6 in. by 4 in. by $1\frac{1}{4}$ in. panels are shown under this with a pierced panel, 8 in. by 4 in. above in centre. The lower filling may be of $1\frac{1}{2}$ in. by $\frac{3}{4}$ in. or $1\frac{1}{2}$ in. by $1\frac{1}{2}$ in. sticks halved together to form a series of squares which to a height of 5 ft. 6 in. might serve the purpose of amply masking what appears from your sketch to be a line of weather boarding. You would, of course, require an additional length of at least 12 ins. for the posts to enter the ground.

The final effect might be obtained either by creosoting, which is economical, or by painting middle green throughout. If, however, a somewhat more striking effect is desired, the main framing might be painted three coats of pure white lead paint after a red lead priming, the filling being finished in either middle or emerald green paint. (391)

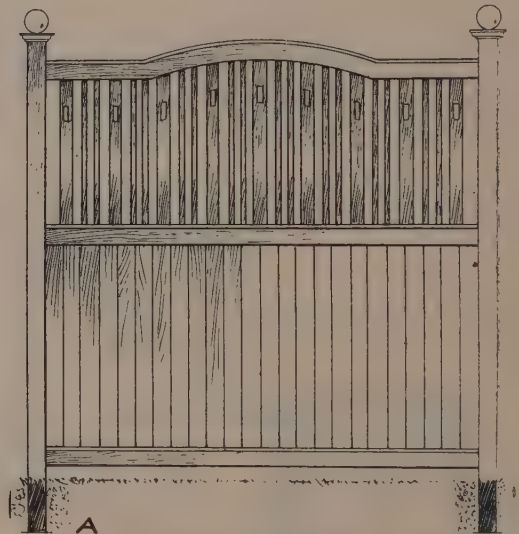


FIG. 1.—GARDEN FENCE, ABOUT 8 FT. 6 IN.

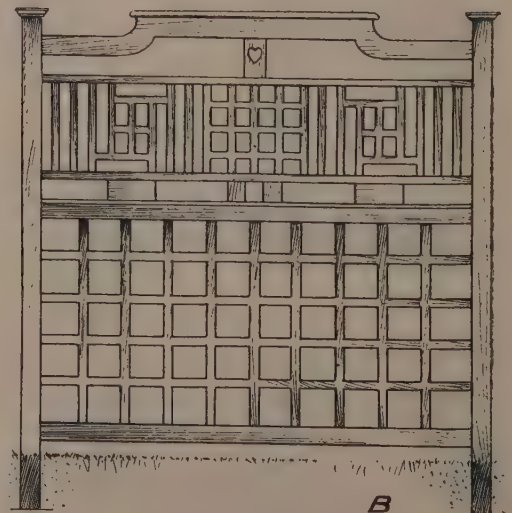
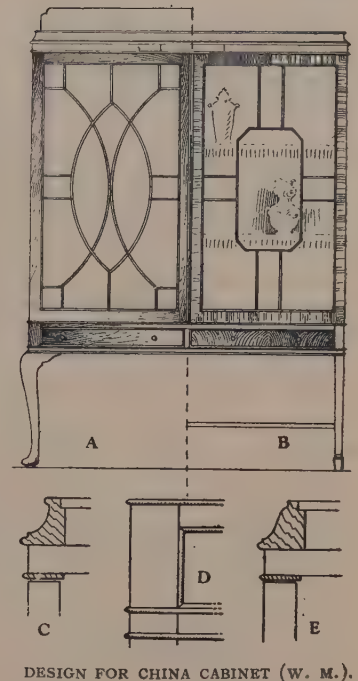
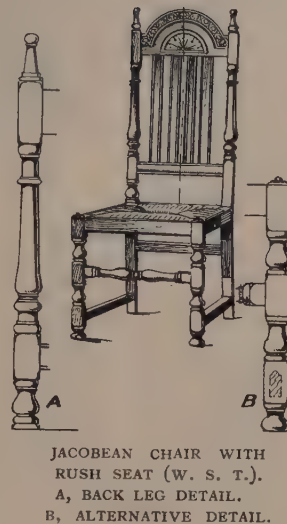
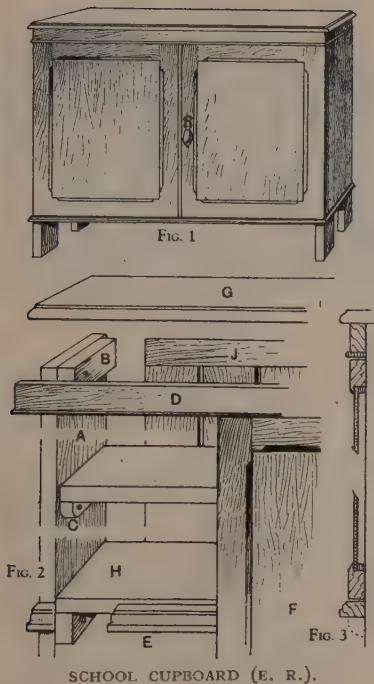


FIG. 2.—ALTERNATIVE DESIGN FOR FENCE.



School Cupboard

E. R. (Ashington) wishes to make an inexpensive cupboard to contain school apparatus.

REPLY.—You do not say in your letter what particular apparatus is to be contained in the cupboard, so that we are unable to give exact particulars for any interior fittings that may be necessary. As, however, you require a cupboard that can be made inexpensively and in the simplest manner with good stability, we think you might make up the ends from selected floor boards of 1 in. thickness which are already plain grooved and tongued together. This, when glued up, will give you about the width for your purpose. If the cupboard is to stand upon an existing chest or table it will finish with a flush bottom, but if to stand on the ground we think it would be best to prolong the ends by about $4\frac{1}{2}$ ins., which will give a better appearance (see Fig. 1).

The ends (A, Fig. 2) when glued up should finish $16\frac{1}{2}$ ins. without further planing and may be held by battens (B), 2 ins. by 1 in. above and below, screwed in position two to each board, of a length to finish flush at front and allowing a $\frac{3}{8}$ rebate at back. Any interior shelves may be of $\frac{3}{4}$ in. thickness to rest upon fillets, $1\frac{1}{2}$ ins. by $\frac{5}{8}$ in., screwed into position (C). Across the front a fillet (D) may be screwed, using $1\frac{1}{2}$ ins. by $\frac{7}{8}$ in. thickness. At the base (E) a length of mould, $1\frac{1}{2}$ ins. by $\frac{7}{8}$ in., may be screwed into position, the projection here like that at D being sufficient to receive the thickness of door (F), $\frac{3}{4}$ in., framed up of stiles and rails, 2 ins. wide, to be either grooved or rebated for plywood panels and beaded in from the back. The top (G) and bottom (H) can be screwed or glue-blocked into position when bedded home.

The carcase back (J) can be made up of V-grooved matching, preferably with a rail top and bottom tongued on, or a framed back of $\frac{3}{4}$ in. thickness may be

grooved for plywood panels and the whole screwed into position to the rebate allowed.

The top may be moulded thumb as in section (Fig. 3), and a slight additional finish may be obtained easily by nailing to the under edge of front rail (D) a length of $\frac{1}{4}$ in. bead, which may be mitred to return round ends. The details offered here will afford you the opportunity of deciding whether you will raise the cupboard about $4\frac{1}{2}$ ins. above ground or, alternatively, finish the bottom with a low plinth. (421)

Jacobean Chair

W. S. T. (Canada) wishes to make a tall back chair of Jacobean design, with rush seat.

REPLY.—There are several types of Jacobean tall back chairs and it would have assisted us if a rough sketch had been enclosed with your letter as a guide. Possibly the design we offer will meet your needs, if you are able to introduce a little carved relief as indicated, failing which such relief might be carried out in applied fret, touched up slightly with the chisel for finish. Two methods of finishing the back legs above seat are shown at A and B. Height of back may be 2 ft. 3 ins. and its width 1 ft. 3 ins., detail spacing being for the bottom rail of $1\frac{1}{2}$ ins. by $\frac{7}{8}$ in. thickness, 4 ins. high above seat. The face length of slats showing in back will be 15 ins., dimensions of slats being $1\frac{1}{2}$ ins. by $\frac{5}{8}$ in., with a $\frac{1}{4}$ in. bead worked along each edge full length.

The top shaped rail would finish $6\frac{1}{2}$ ins. high, to be tenoned into position. The turned back legs would finish $1\frac{1}{2}$ ins. by $1\frac{1}{2}$ ins. at seat, turned up to the detail indicated and separately shown enlarged at B, a slight rake being allowed for comfort. Width of front of seat would be $17\frac{3}{4}$ ins. and the back to front measurement $16\frac{1}{2}$ ins. The legs would be $1\frac{1}{2}$ ins. by $1\frac{1}{2}$ ins. divided up to allow a 2 in. turning at ground, a 3 in.

block, 3 in. turning, 3 in. block, 3 in. turning and 3 in. block, the top of leg being finished by a flat turned button. The seat rails would be 2 ins. by 1½ ins. thick, the front turned rail under being from 1½ ins. stuff, the back rail of underframing 1½ ins. by ½ in. and the side rails also 1½ ins. by ½ in., with the top edge moulded. Rails will be tenoned well home into leg and pegged.

For the rush seat we would refer you to *THE WOODWORKER* for August, 1928, in which the method of procedure is described. (4400)

China Cabinet

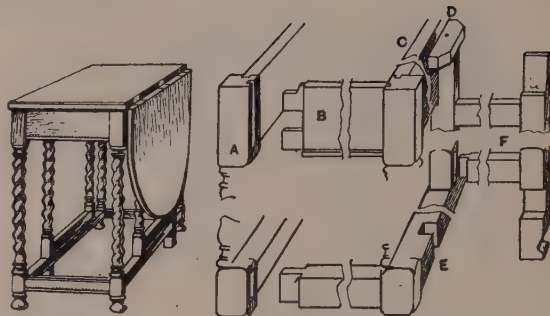
W. M. (Leicester) sends details of a china cabinet he wishes to make and asks for help with the design.

REPLY.—We note from your letter that you require an attractive design for a china cabinet, the dimensions of which must be about 3 ft. 3 ins. wide by 4 ft. 6 ins. high, the depth being 12 ins. to 14 ins. back to front over all, doors to have ornamental glazing bars and provision to be made for a cutlery drawer or drawers. On these lines we think you might proceed successfully by following either of the alternative designs, A and B, shown on previous page. Height of cabinet part shows 2 ft. 9½ ins., made up of ends top and bottom, ⅞ in. thick, dovetailed together and with a four panelled back of ⅝ in. or ¾ in. thickness rebated into position and screwed on. The cornice has a receding mould as desired and finishes 2½ ins. high, the receding section itself being 1½ ins. high mitred to return round ends, which will, of course, form a slight well to the top. This, if not required, may be filled in with a dustboard of ¾ in. thickness or so, rebated into position. The frieze shows a central panel of plywood mounted.

The doors will be framed up of 1½ ins. by ⅞ in. stiles and rails, mortised and tenoned together and pinned, to be hinged with three 2 in. brass butts each. The barring at A can be steamed to shape and cut to intersect, the moulded surround being one half of the astragal section (a special article on barred framings appeared in the October number). This door should afford an elegant result, but if something on straighter or more severe lines is preferred the suggestion at B should meet your needs. Two shelves are indicated inside, and these may be supported on special shelf pins, or in a simpler manner on brass screw eyes screwed to the end framings with rubber buffers.

The cabinet is intended to stand upon a flush finished stool which is fitted with two shallow drawers for the reception of cutlery and possibly light napery. The drawers should be divided up with ¼ in. slip, V-grooved into position to sides, to receive separately knives, forks, spoons, carvers and small accessories, ¾ in. thickness being used for fronts with ¾ in. sides and backs dovetailed together, and bottoms screwed on.

Cabriole legs are shown as being more suitable for A, whilst B might be mounted on square tapered legs with or without moulded toes. An underframing rail, ⅝ in. by ⅞ in., might be tenoned between back pair of tapered legs and return each end to the front pair. It will be noted that the door framings may be treated with cross-cut veneer for additional effect, and the same may be done for the facing of drawers if desired. An enlarged section for receding mould and detail under is seen at C, with an alternative section at E, while at D is shown the method of finishing the stool and drawer portion. A line for the top back rail is given at A, as desired, but the general effect would not suffer by its omission altogether. (417)



CONVERSION OF ROUND TABLE INTO GATE-LEG TABLE.

From Round to Gate-leg Table

E. L. (Durham) wishes to convert a round table into a gate-leg table with drop leaves.

REPLY.—Provided that the circular table top in your possession is perfectly true and that it is not lined up or fitted with underframing, which, if removed, would render the top when cut in two somewhat liable to "cast," you could use the wood for the purpose of a gate leg table by the addition of a centre part, 21 ins. by 16 ins., making the total size of top when opened out 58 ins. by 21 ins., a somewhat full size, for which at least ⅞ in. thickness would be necessary.

We offer a sketch showing the centre parts and underframing with one drop leaf down, the finished height of the table being 2 ft. 5 ins. The two end rails (B), of ⅞ in. thickness, should be mortised well home into legs and pegged, the width over the legs here when fitted being 15 ins. These end rails should be 4 ins. to 5 ins. wide according to the length of block on your legs for a firm table of the size required. The side rails (C) should be of a width to correspond, using 1 in. stuff, in addition to which a screwed block can be added to the sides as indicated at D for the purpose of receiving a pin pivot for the gate to swivel upon. For this purpose the sides (C) will require to be mortised into the legs somewhat near the inner angle so that, when the bottom or stretcher rails (E) are fitted, they may be in a position to receive a corresponding pin or pivot to hold the leg in position vertically. The projection of top over the end rails (B) may be anything between 1 in. and 2 ins. These underframing rails should be of the same substance as the legs, 2 ins. by 2 ins., mortised into position and pegged, and their distance from the under side of pivoting block must determine the finished length of the legs concerned, a point which might be borne in mind when setting out the full size sketch, so that the legs you have may not be unnecessarily cut down. The pivot block (D) may be cut from a piece, 6 ins. by 1½ ins. by 1 in.

The right hand or outer leg of the gate will be of a length to support the table top when opened out, and will be framed to the inner or left hand leg with 2 in. by 2 in. rails top and bottom as shown. A plan of this underframing showing the position of the notchings in underframing rails into which the gates will enter for the leaves to fall was given in our October number, page 293, to which please refer. It is possible, if desired, to fit a drawer made in the ordinary manner, but which can travel on a 2 in. by 1 in. centre stretcher rail dovetailed each end into bearer rails of 2 in. by 2 in. tenoned to legs, and with a top rail of 2 in. by 1 in. dovetailed in. (418)

THE HANDICRAFT CENTRE

CHRISTMAS PRESENTS—STATIONERY CABINET

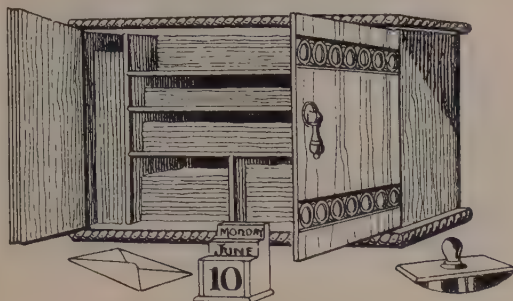


FIG. 1.—STATIONERY CABINET, 14 IN. BY 10 IN.

A STATIONERY cabinet of the kind sketched at Fig. 1 has the advantage over the open rack in that all dust and dirt are excluded, and stationery placed in it is kept perfectly unsoiled. Any of the usual cabinet woods could be used, and the dimensions may be adjusted to meet individual needs, but the cabinet shown, which measures 14 in. long by 10 in. high by 7 in. deep, should meet all ordinary requirements. Working sizes and a suitable arrangement of the interior are shown at Figs. 2 and 3, and constructional details at Figs. 4 and 5.

THE TOP AND BOTTOM are 15 in. long by 7 in. wide, and the sides 9½ in. long by 6½ in. wide by ½ in. thick, tenoned into the top and bottom as at Fig. 4. Rebates, ⅞ in. square, are worked around the edges of the sides, top and bottom, as at Fig. 5, to receive the back, which could be

of ⅝ in. ply. The interior shelves and divisions are of ⅝ in. stuff, V-grooved together and into the top and bottom. When fixing up the parts, the sides are glued into the top and bottom, the shelves and divisions are slipped in from behind and the back is pinned in the rebates.

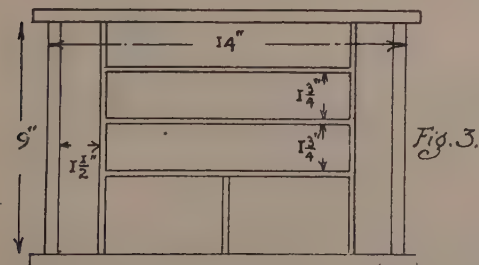
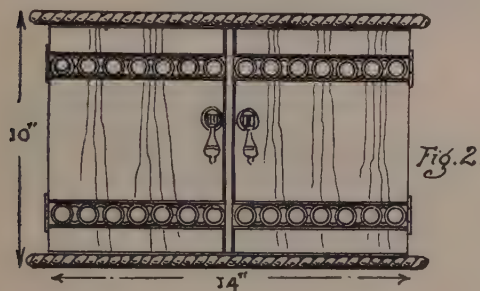
THE DOORS are cut from solid pieces of ½ in. stuff. The meeting edges could be rebated together or left square as desired, and strips of 1 in. by ⅞ in. embossed moulding are grooved across the face. Brass hinges about 1½ in. wide should be used to hang the doors, and they may be fastened with a bolt and cabinet turn, or with ball catches fitted between the top edges of the doors and the under side of the top. The edges of the top and bottom could be finished with strips of ½ in. half-round moulding. (446)

BOOK RACK

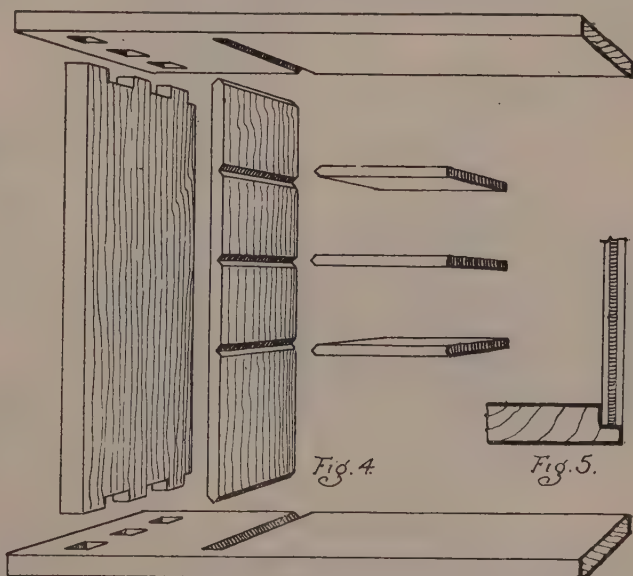
MANY woodworkers welcome designs for small articles such as the book rack sketched at Fig. 1 (next page) as affording opportunity for using up small pieces of material on hand, and the articles are always useful.

THE MATERIAL required is: two ends, 5 in. long by 6 in. wide; two shelves, 18 in. long by 3 in. wide; two bearers, 6½ in. long by 1½ in. wide, all by ⅝ in. or ¾ in. thick; 3 ft. of ⅝ in. half-round turned beading; 3 ft. of ¼ in. quarter-round turned beading; two turned buttons 1 in. diameter, and four buttons ½ in. diameter.

THE ENDS are shaped as at Fig. 2, and grooves ⅞ in. deep are cut for the reception of the shelves



FIGS. 2 AND 3.—EXTERIOR AND INTERIOR VIEWS.



FIGS. 4 AND 5.—DETAILS OF CONSTRUCTION.

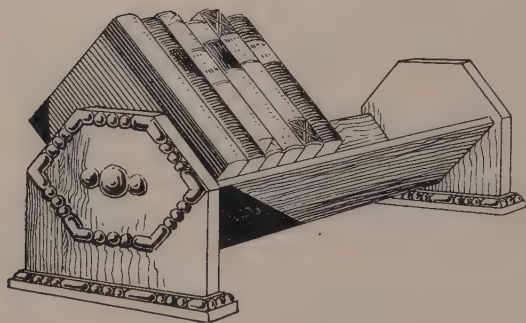
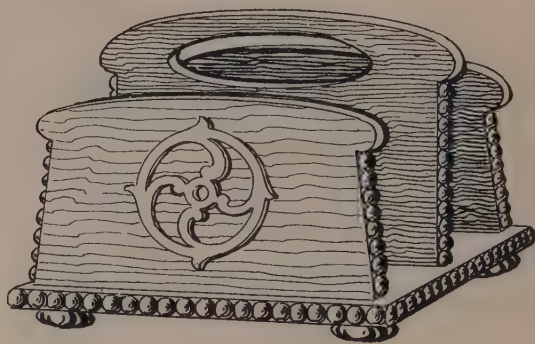
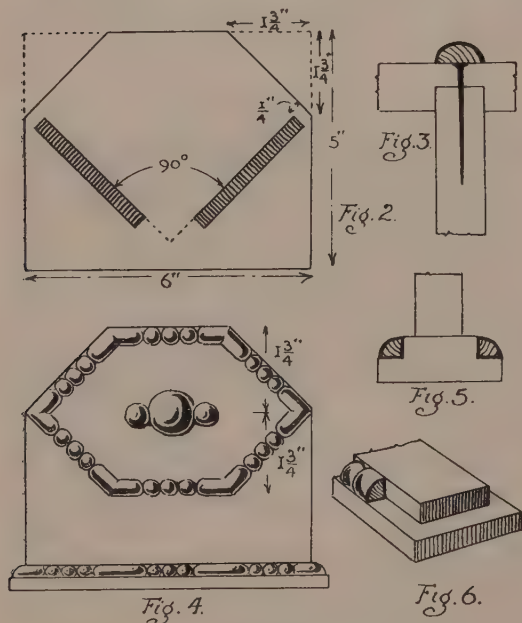
FIG. 1.—BOOK RACK: END, $6\frac{1}{2}$ IN. BY $5\frac{1}{2}$ IN.

FIG. 1.—LETTER STAND: 5 IN. BY 5 IN.

LETTER STAND

THE letter stand sketched at Fig. 1 is an inexpensive and easily made little article of a type which the woodworker could quickly turn out of hand for presents, bazaars and similar purposes. The wood should be from $\frac{1}{4}$ in. to $\frac{3}{8}$ in. thick, almost any kind of good quality being suitable.

THE STAND is made with a bottom, two sides



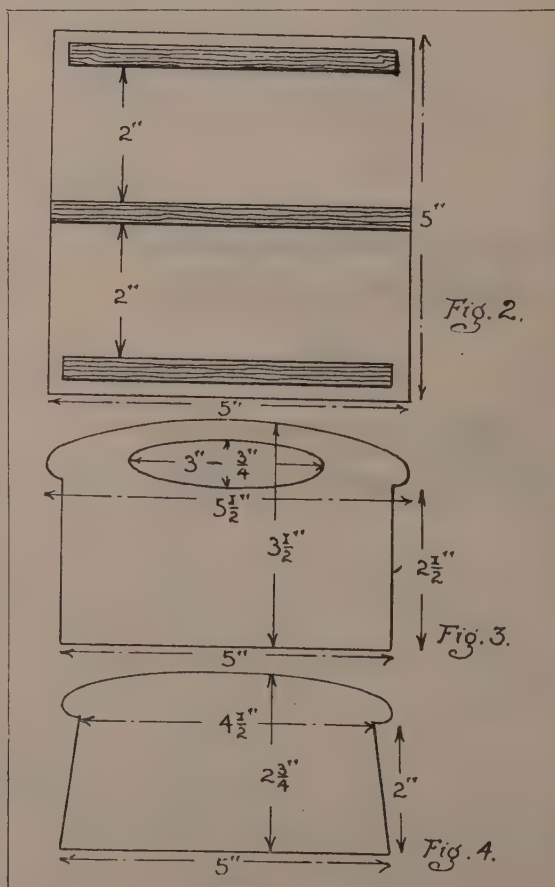
FIGS. 2 TO 6.—DETAILS OF BOOK RACK.

which fit in the grooves and are nailed from the outside as at Fig. 3. The $\frac{3}{8}$ in. half-round beading fixed around the ends (Fig. 4) will cover the heads of the nails, and the turned buttons are fixed in the centre. Rebates, $\frac{1}{4}$ in. square, which may easily be cut with a tenon saw, are prepared round the edges of the bearers, as at Figs. 4 and 5, for the reception of the quarter-round beading which is fitted and glued in place, while the bearers are glued and nailed to the bottom edges of the ends.

(444)

TO READERS

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and a centre division to form two compartments, the division being higher than the sides and provided with a handhole. The bottom (Fig. 2) is $5\frac{1}{2}$ in. by $5\frac{1}{2}$ in., and the division (Fig. 3) $5\frac{1}{2}$ in. by $3\frac{1}{2}$ in., and the two sides (Fig. 4) 5 in. by $2\frac{1}{2}$ in. A fretsaw would be found useful in shaping the sides and division. In fixing up the parts, the sides and division are glued to the bottom, and pinned or screwed from under. Strips of half-round turned beading are fixed to the edges of the bottom, sides and division. Four turned toes should be fixed under the bottom, and a fret of somewhat similar design to that shown at Fig. 1, and about 2 in. in size, should be fixed to the sides. (447)

TRUMPS INDICATOR

THE trumps indicator sketched at Fig. 1 is a very seasonable little piece of work to put in hand, either for personal use or as a present. The article is made with a base built up from two thicknesses of wood, and above this the two sides of the stand are fixed. The indicator is circular in shape, pivoted between the two sides of the stand with a screw. Figures representing the different suits of cards are fixed upon it and appear through a hole cut in one of the sides of the stand. Many woodworkers will no doubt be able to use up odds and ends of wood, and, while almost any kind is suitable, it will be found that the most effective result will be obtained by using oak or mahogany for the base and stand, and sycamore or a similar light wood for the indicator.

The wood used for the base and stand should be $\frac{1}{4}$ in. thick. The lower portion of the base is 5 in. by 3 in., and the upper portion $4\frac{1}{2}$ in. by $2\frac{1}{2}$ in. The two are glued together and strips of quarter-round beading fixed at the edges.

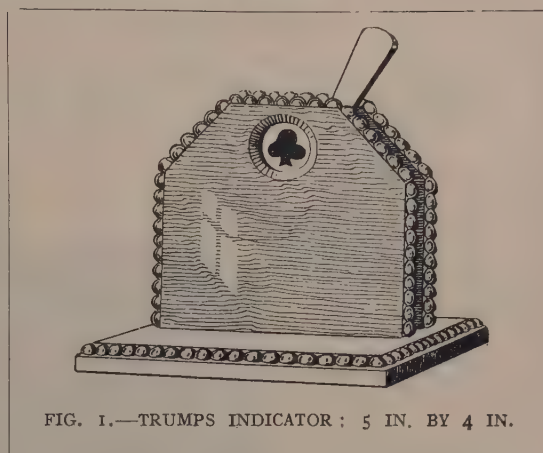


FIG. 1.—TRUMPS INDICATOR: 5 IN. BY 4 IN.

THE SIDES of the stand are 4 in. by $3\frac{1}{2}$ in. shaped as shown, and a $\frac{1}{4}$ in. hole is cut in one side as at Figs. 2 and 3. Wood of $\frac{1}{8}$ in. thickness should be used for the indicator, which is shaped as at Fig. 4. The figures representing the suits of cards are cut from $\frac{1}{16}$ in. wood to the pattern shown at Fig. 5, and glued to the indicator. Contrasting coloured woods could be used for the figures, or they may be painted the usual black and red. Small discs (Fig. 6) of $\frac{1}{8}$ in. wood are prepared and glued to the inside of the sides at the point at which the pivot screw is driven. When the glue is dry the work may be assembled by placing the indicator between the sides and driving the pivot screw. The sides are glued to and pinned through the base, and for ornamentation strips of $\frac{1}{4}$ in. half-round beading are fixed around the edges of the sides. (445)

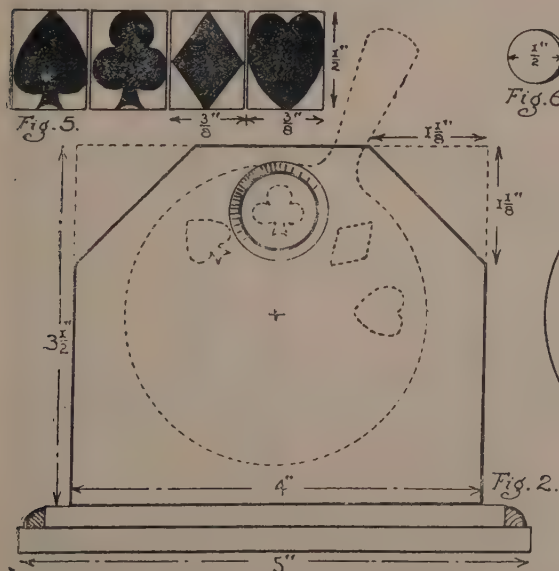


FIG. 2.—ELEVATION.

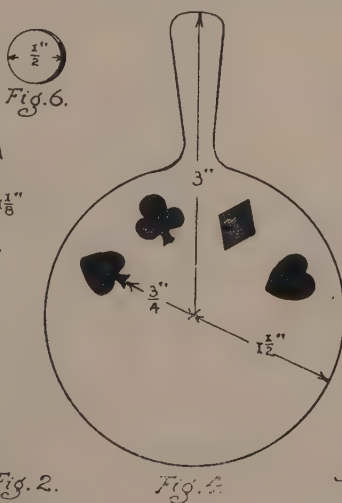


FIG. 3.—SECTION.

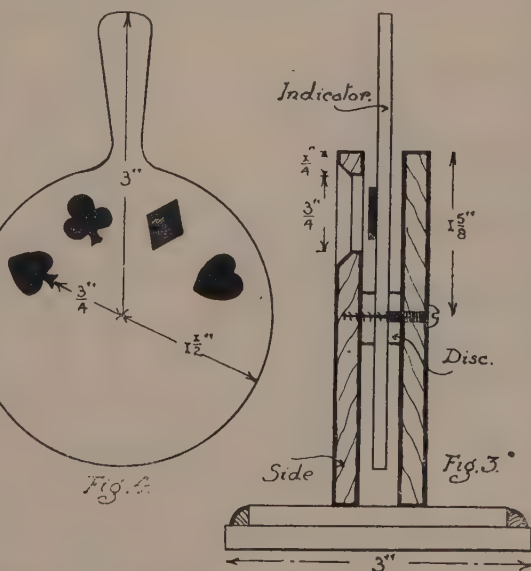
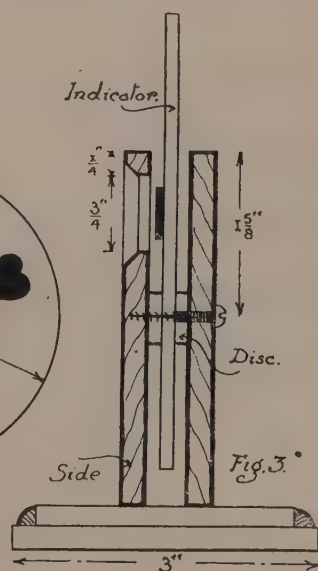


FIG. 4.—INDICATOR.



FIGS. 5 AND 6.—DETAILS.

LIGHT CABINET WORK

CHOICE DESIGN FOR A MEDICINE CABINET

TWO features of this medicine cabinet may be emphasised at the outset. The first is the provision made for general usefulness. The

two cupboards, for example, permit of the separation of ordinary medicines from bottles labelled "for outward application only." As, too, each cupboard has two compartments, any bottle with the red "poison" label may be isolated. The drawers, on the other hand, are provided for items such as ointments, pill boxes, dressing material, thermometer, etc. Locks are not shown, but could easily be added.

The second feature is that, combined with simplicity of construction, the cabinet is of attractive modern design where the selection of suitable timber will enhance the finished result. Although indicated as a hanging cabinet, it is equally suitable for standing on a wide mantelshelf or on a chest of drawers. If thus preferred, all that is necessary is to omit the apron piece, reduce the length of ends by

3 ins., and allow the article to stand on four block toes (Fig. 6). Reference to this is made later.

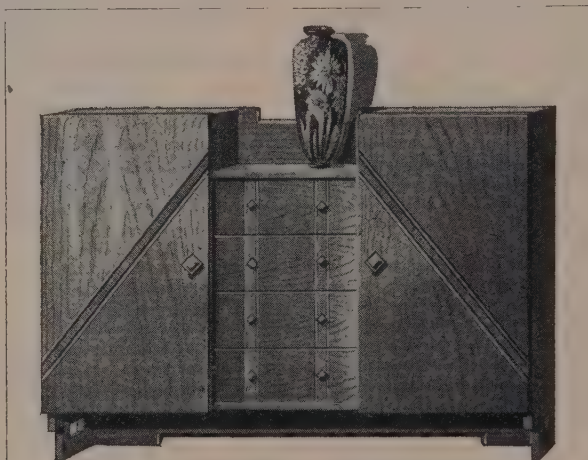


FIG. 1.—DESIGN FOR A MEDICINE CABINET.
WIDTH, 2 FT. 2 IN. HEIGHT, 1 FT. 7 IN.
(MAY BE ADAPTED FOR STANDING).

The wood used may be oak, mahogany, or walnut. The choice will depend partly on surrounding furniture, although in the case of a small item of the kind we are not tied down to strict uniformity. The *show* wood is chiefly that of the doors and drawers, and—if desired—plywood faced with nicely figured veneer might be used for these parts.

With regard to joints, these may be simple throughout. The bottom (C) should preferably be dovetail-housed to the ends (A), although a plain housing (stopped $\frac{1}{2}$ in. from the front) will serve.

The two tops (D), again, could be dovetailed to the ends, but a sound joint is had by simple rebating.

THE ENDS (A, Fig. 7), for a hanging cabinet are cut to finish 10 ins. by 7 ins., with the lower ends shaped and pierced as shown in Figs. 2 and

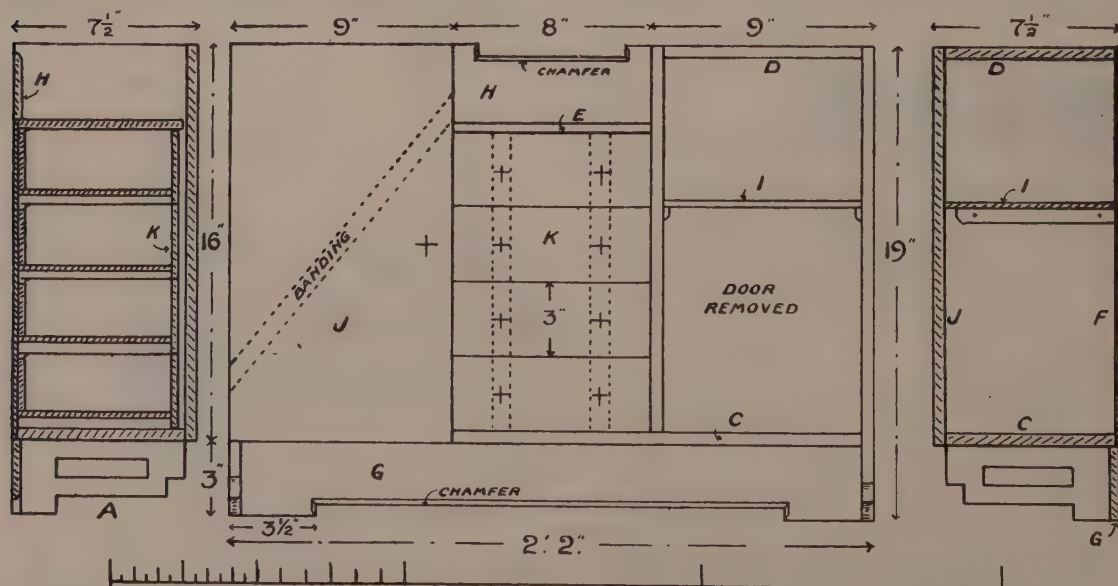


FIG. 2.—SECTION THROUGH DRAWERS.

FIG. 3.—FRONT ELEVATION WITH SCALE.

FIG. 4.—SECTION THROUGH CUPBOARDS.

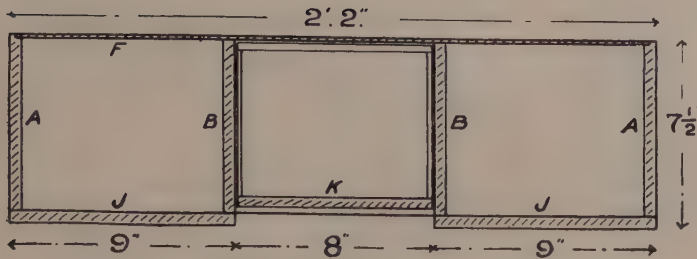


FIG. 5.—SECTIONAL PLAN: SCALE AS AT FIG. 3.
(Note that the Centre Part is slightly recessed).

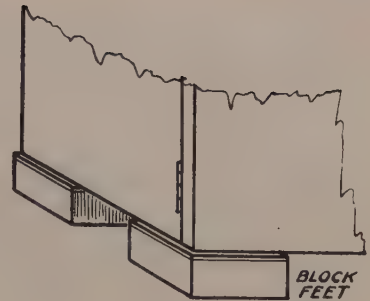


FIG. 6.—ALTERNATIVE FEET.

4. They are grooved (plain or dovetail) for the bottom (C) and rebated for the top (D) and the back (F). If preferred, the plywood back may be fixed on over all, but this gives a less satisfactory finish. The pierced opening at foot of ends is 3 1/2 ins. by 1/2 in.

THE INNER ENDS (B) are housed to the bottom, whilst at the top they are rebated for D. On one face they will be trenched to receive the drawer case top (E), the trenching being stopped 1/2 in. from front edge.

THE BOTTOM (C) will have its housings worked at each side to enter the ends, and is trenched for the inner uprights. The plywood back will be nailed over the bottom, so that the latter does not require rebating (see Figs. 2 and 4).

THE CUPBOARD TOPS (D) also take the plywood back over all. They are rebated (or alternatively dovetailed) to the ends. The doors, of course, close over the ends, top and bottom, but a neater carcass joint will result if the rebate is stopped back about 1/2 in. from the front.

OF THE OTHER CARCASE PARTS, the drawer case top (E) is housed to the inner ends (B). Note carefully that (as seen in section, Fig. 2) the drawer section is slightly recessed. The top (E) may be schemed to come within about 1/8 in. from face of ends (that is, leaving the doors quite clear); the drawer fronts will stand in about another 1/8 in.

The plywood back (F) may be in one piece, cut away at the centre (top) to allow for the middle rail (H). It lies in the rebates cut in the ends, and finds a bearing for screws on ends (A and B), bottom (C) and tops (D and E).

The apron rail (G) and the top back rail (H) can be dowelled and glued in. Note the break in each piece (Fig. 3) with the chamfered edges. The inside shelves (I) may be of 1/2 in. stuff, resting on fillets pinned to the ends (Fig. 4).

DOORS (J).—These finish 16 ins. by 9 ins., opening over the outer ends. They may be of 10 mm. or 12 mm. faced ply; or, in a light way, they could be framed up of 1 1/2 in. by 1/2 in. stuff and faced over with thin ply. Their one decoration is a broad inlay banding, either 1/4 in. or 1 in. wide according to colour, this being laid diagonally as shown in Fig. 3 (left hand). The doors must, of course, finish perfectly square in line with the carcass, and require hanging to a perfect nicety in order that all may be flush.

THE DRAWER FRONTS (K) may be solid, or of plywood to correspond with the doors. A good effect is obtained if all four are cut from one board, the grain of which may be horizontal or vertical as preferred. It will be noticed that there are no dividing rails between the drawers. They are carried on 3/8 in. by 3/8 in. runners (see L, Fig. 7), the runners being cut short so that the drawer fronts overhang by the matter of 3/8 in. below the bottom. The detail inset sketch in Fig. 7 shows this. The runners themselves act as drawer stops.

The drawers are indicated as put together without dovetailing. Sides and back may be 3/8 in. The sides are rebated to enter the front and back which are grooved accordingly. The 1/2 in. ply bottom is glued on. Accurate gauging, cutting and fitting are necessary, but otherwise the work is simple.

If the drawer fronts are cut from one board, the decorative bandings should be laid in before the piece is cut. The knobs are centred on the bandings. Erinoid knobs of a quiet colour should be used for drawers and doors, a larger size being selected for the latter.

STANDING CABINET.—If it is inconvenient to

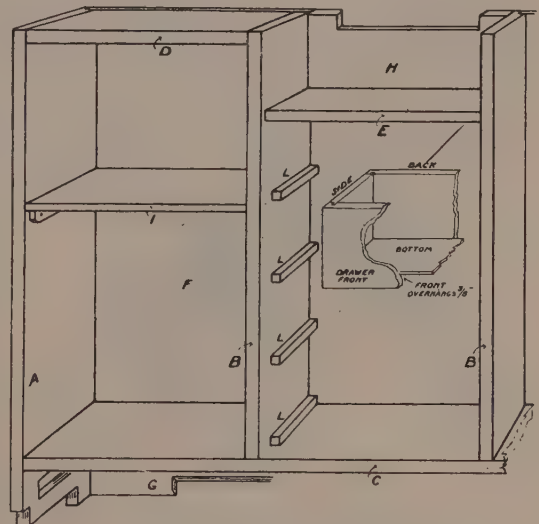


FIG. 7.—SKETCH OF GENERAL CONSTRUCTION.

arrange for a hanging cabinet, the ends (A) will be cut 3 ins. shorter; the bottom (C) will be rebated (or, if preferred, dovetailed) to the ends. The apron rail (G) is not required. No plinth is necessary, but the cabinet should stand on four blocks (see Fig. 6), which may be cut 3 ins. square by 1 in. or $1\frac{1}{4}$ ins. high. These blocks should be allowed to project $\frac{1}{8}$ in. (not more) at front and sides, and a good effect is obtained if a $\frac{1}{8}$ in. or $\frac{1}{4}$ in. inlaid stringing is run around the sides at the top. The blocks can be glued on and (if necessary) screwed from below.

(Cutting List opposite).

THE WOODWORKER ANNUAL Volume for 1930 is now ready, price 6/6 net. Prominent features are designs for Suites of Living-Room and Bedroom Furniture, serial articles (fully illustrated) on Home Carpentry, Outdoor Woodwork Joints, The Handicraft Centre, etc., and information on all subjects related to woodworking. The Volume is bound in strong dark green cloth and has a full index. Evans Bros. Ltd., Montague House, Russell Square, London, W.C.1.

CUTTING LIST:—Allow

		Long. ft. ins.	Wide. ins.	Thick. ins.
(A) Two outer ends (shaped at foot) ...	1	7 $\frac{1}{2}$	7 $\frac{1}{2}$	$\frac{1}{2}$
(B) Two inner ends... ..	1	4	7 $\frac{1}{2}$	$\frac{1}{2}$
(C) Bottom	2	2	7 $\frac{1}{2}$	$\frac{1}{2}$
(D) Two cupboard tops... ..	0	9 $\frac{1}{2}$	7 $\frac{1}{2}$	$\frac{1}{2}$
(E) Drawer case top	0	8 $\frac{1}{2}$	7	$\frac{1}{2}$
(F) Back	2	2	16 $\frac{1}{2}$	ply.
(G) Apron rail	2	2	3 $\frac{1}{2}$	$\frac{1}{2}$
(H) Top back rail	0	8 $\frac{1}{2}$	3 $\frac{1}{2}$	$\frac{1}{2}$
(I) Two inside shelves	0	8 $\frac{1}{2}$	7	$\frac{1}{2}$
(J) Two doors	1	4 $\frac{1}{2}$	9 $\frac{1}{2}$	10
				or 12 mm. ply.
(K) Four drawer fronts	0	8 $\frac{1}{2}$	3 $\frac{1}{2}$	$\frac{1}{2}$
8 drawer sides	0	6 $\frac{1}{2}$	2 $\frac{1}{2}$	$\frac{1}{2}$
4 drawer backs... ..	0	8 $\frac{1}{2}$	2 $\frac{1}{2}$	$\frac{1}{2}$
4 drawer bottoms	0	8 $\frac{1}{2}$	6 $\frac{1}{2}$	$\frac{1}{2}$
(L) 8 runners	0	6 $\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$

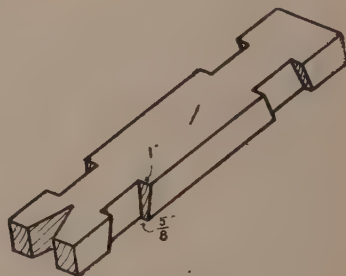
Allowance is made for fitting, but thicknesses are net. (430)

HANDY WORKSHOP TRESTLES

A PAIR of trestles or sawing stools are indispensable in any workshop, and Fig. 1 illustrates a simple and inexpensive type of trestle which is made to a convenient height for sawing and other necessary work. (See also design for a portable work bench on another page).

Fig. 2 shows dimensioned elevations, while Fig. 3 indicates how the top is prepared to receive the legs. The top is marked out to the dimensions given and the housings sawn out to receive the width and thickness of the legs. The necessary side splay of the legs is given by making the housings 1 in. deep on the top edge and $\frac{3}{8}$ in. deep on the bottom edge. When the legs have been securely screwed in position to the top, side pieces about 7 ins. deep by 1 in. thick are screwed to the outside edges, which makes the legs rigid. The projecting parts of the legs may now be dressed off flush with the top, while the bottoms of the legs are sawn off to their correct length after being scribed level from the floor.

FIG. 2.—
SKETCH OF
TOP, SHOWN TO
TAKE LEGS.



A V-cut, about 2 ins. wide and 4 ins. long, is then made in one end of the top to facilitate ripping. (433)

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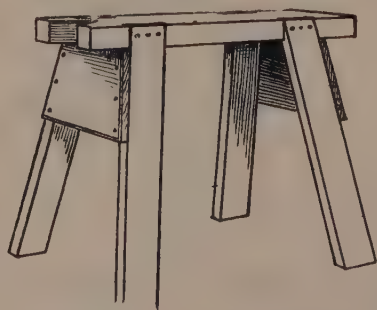


FIG. 1.—WORKSHOP TRESTLE.

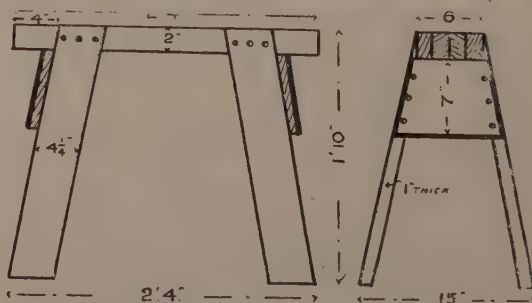


FIG. 2.—ELEVATIONS WITH SIZES

TOY MAKING—A BOY'S GUN

A SUITABLE CHRISTMAS TOY

IT is an undoubted fact that the average youngster takes delight in shooting; and now on the approach of the festive season, when the youngest member of the family usually receives special attention, many may be interested in such an easily constructed toy as that pictured herewith.

The article is a gun of an unusual kind seen in use frequently by children on the Continent, but which the writer does not remember to have observed in the hands of a child in this country. It is capable of projecting its missile to a very considerable height, whilst being both easy to work and harmless in use whether in the garden or open street.

Two strips of common deal, bass, birch or mahogany (preferably the last named), 18 in. to 24 in. long by $\frac{3}{4}$ in. wide and $\frac{5}{8}$ in. thick, with a groove $\frac{1}{4}$ in. deep by $\frac{3}{16}$ in. wide ploughed its entire length, will form the sides (A, Fig. 2). Care should be taken that this groove is clean and as smooth as possible so that it may offer no resistance to propulsion. These sides are connected at the lower end by a piece $4\frac{1}{2}$ in. long by $1\frac{1}{2}$ in. wide by $\frac{5}{8}$ in. thick to be bridle-jointed into position (B, Fig. 2) in a similar manner to the frame of an ordinary school slate. The joint is held by three fine brass screws and the outer corner afterwards rounded away for finish. The section given in Fig. 3 shows the grooving for the pieces A.

About 4 in. from the top of the sides these are held by two slips (D, Fig. 4), $4\frac{1}{2}$ in. by $\frac{1}{4}$ in. by $\frac{1}{2}$ in., to be screwed one each side of frame as indicated, thus leaving the grooving quite clear for use. In the centre of D and on each piece a $\frac{1}{2}$ in. brass screw eye is entered as noted (E), and to these screw eyes a length of elastic is attached, this being looped through and secured by a copper collar clipped on by pliers; or, if preferred, waxed thread can be substituted as a binding. A section showing groove, cross pieces and eyes is added at Fig. 5.

The best kind of elastic to procure is that about $\frac{1}{4}$ in. diameter with a plaited twist covering similar to that often forming part of men's braces and purchaseable at Woolworth's stores. This affords a better holding for the fingers, but a good result is obtainable from any thick elastic.

This will complete the gun itself and it then remains to supply the missiles. These take the form of cardboard discs which, as Fig. 1 indicates, are to be dropped into the grooved sides, when they will enter the elastic in such a position that both disc and elastic can be grasped

by thumb and forefinger and the elastic extended as far as possible before releasing, when it will be found that the disc is projected with considerable force.

The disc should not be too large to jamb in the grooves or too small to wobble when shot. Ordinary six-sheet cardboard is very suitable for the purpose, and the discs can easily be struck all of a size by means of compasses and cut out by the youngster himself to replace any that may get beyond reach. Instead of cardboard, tin (provided that it is quite flat) may be used, and it is easy to conceive that such efficient little article in the hands of a group of boys will cause sufficient competitive excitement to satisfy anyone who has taken the trouble to make it. (425)

SHARPENING CUTTING BLADE.—Until recently I found some difficulty in sharpening the cutting blade of my all-metal smoothing plane. The blade or cutting iron is about $\frac{1}{4}$ in. in thickness and, when sharpening it on the oilstone, I sensed a give or spring, but have overcome this in the following manner. I release the screw of the cap-iron and just slide the blade slightly forward, tightening the screw of the cap-iron with the finger and thumb. The result is a better grip for sharpening and at the same time it stiffens up the blade and thus avoids the spring and the consequent undue vibration.—JAS. YOUNG (West Ham Lane, E.15.) (431)

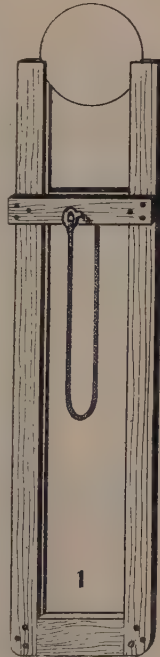
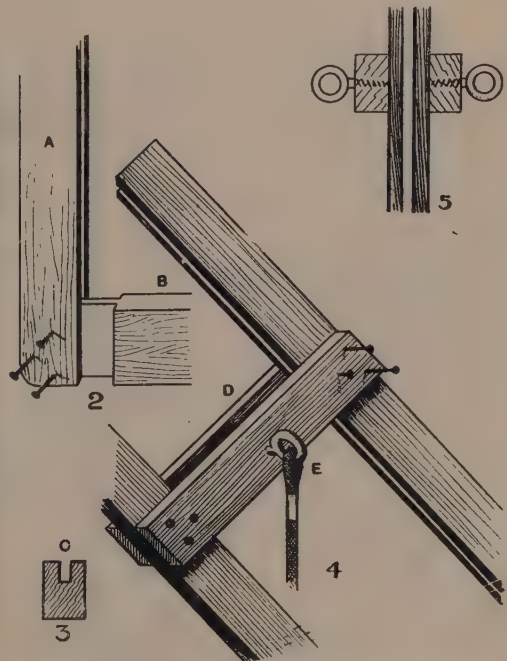


FIG. 1.—TOY GUN.



FIGS. 2, 3, 4 AND 5.—DETAILS OF CONSTRUCTION.

GRAMOPHONE CABINET



FIG. 1.—PEDESTAL GRAMOPHONE CABINET.

MAHOGANY would be the best timber to employ for this attractive pedestal cabinet, oak being an excellent alternative. The legs and lid moulding may be purchased ready turned, the standard stock size being incorporated in the design. It will be found just large enough to take a skeleton gramophone set comfortably without appearing large and heavy looking.

CONSTRUCTION.—Dimensions are 1 ft. 6 in. wide, 1 ft. 6 in. deep, and 3 ft. 3 $\frac{3}{4}$ in. high. The legs (A) are 3 ft. long and 1 $\frac{1}{2}$ in. square above the shape, the latter being 9 ins. They should be paired and grooves worked to take the ends (F) and the back (G). These should be of dry, nicely figured timber and are shaped at the bottom, all three pieces being cut together. The ends (F) and the legs (A) should be glued together first, allowing a full $\frac{1}{16}$ in. set in at the joint. When set, fix the back and tenon or dovetail the top front rail (E) to the legs. The plywood bottom is fixed to bearers screwed to the ends and back. Bearers are now screwed to the ends to support the motor board (J), tone arm board (K) and shelf (L), allowing space between each for the trumpet as shown in Fig. 3. The motor board and tone arm board must be removable for the fitting of the gramophone set. The shelf (L) may be fixed permanently. Enough space is available in the cupboard to stow 12-in. records vertically, as in Fig. 3, but horizontal shelves may be fitted if desired, the divisions or shelves being in $\frac{3}{16}$ in.

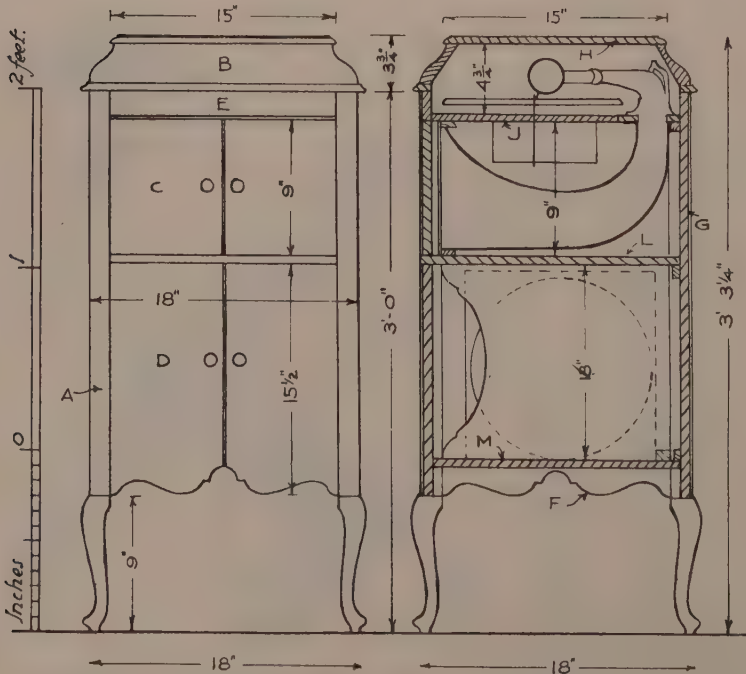


FIG. 2.—FRONT ELEVATION.

FIG. 3.—SECTIONAL END VIEW.

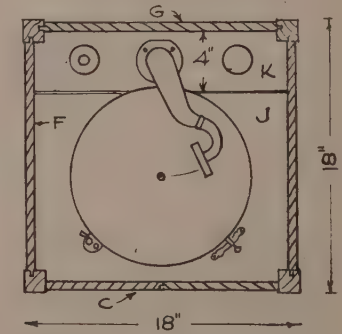


FIG. 4

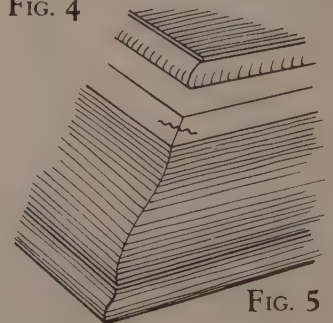


FIG. 5

FIG. 4.—PLAN. FIG. 5.—TOP.

thick plywood, shaped on the front edge to allow fingers to grip the records.

THE LID.—Fig. 5 suggests the construction. The mouldings are mitred and the joints doweled or tongued together. Steel corrugated mitre joint fasteners could be used, being driven in top and bottom. The moulded top is fastened down by panel pins and a thin plate moulding mitred and glued round the base of the lid, the moulding to project a little as a grip for the fingers when lifting the lid (Fig. 7). A piano hinge or ordinary butt hinges may be used and a hinged lid stay will be necessary.

THE DOORS should be in nicely figured wood with a small centre closing bead, and the bottom doors shaped as the ends and back. $1\frac{1}{2}$ in. acorn ended silvered butts should be used, and a ball catch to each door. Very small and neat silvered knobs should be fitted. Instead of a louvre, a fretted plywood grille is suggested in front of the trumpet with an orange or blue silk backing. These grilles can be purchased ready for fixing. Fix by screwing to fillets with fine screws.

THE GRAMOPHONE PARTS.—Instructions for making a plywood trumpet have already been given in the September number. Metal trumpets can be obtained cheaply and easily fitted and, considering the very small difference in tone, it pays to buy one. Manufacturers of gramophone parts usually give full working instructions for fitting, but a few points are worth noting. The tone arm and trumpet should be fixed first, the two-inch hole in the tone arm board being central. Insert a needle in the sound box and the point of the needle will indicate the position of the turntable spindle of the motor through the motor board. When fixing motor see that the winding spindle is on the right hand side.

FINISH.—Mahogany should be stained a suitable brown colour. A little brunswick brown ground to a paste and added to a rich walnut water stain, say a half teaspoonful to a pint of stain, will give excellent results. A full polish is effective.

Oak should be stained a warm vandyke brown and brush polished, well rubbing down with flour paper between each application.

CUTTING LIST:—

	Long. ft. ins.	Wide. ins.	Thick. ins.
A 4 legs	3 0	2	2
B 4 lid moulds	1 6	4	$\frac{7}{8}$
C 2 top doors	0 9	$7\frac{3}{4}$	$\frac{5}{8}$
D 2 Bottom doors	1 3 $\frac{1}{2}$	$7\frac{3}{4}$	$\frac{5}{8}$
E 1 top rail	1 5	2	$\frac{5}{8}$
F 2 ends	2 3	$15\frac{3}{4}$	$\frac{5}{8}$
G 1 back	2 3	$15\frac{3}{4}$	$\frac{5}{8}$
H 1 top	1 3	15	$\frac{1}{2}$
J 1 motor board	1 4 $\frac{1}{2}$	12 $\frac{1}{2}$	$\frac{1}{2}$
K 1 tone arm board	1 4 $\frac{1}{2}$	4	$\frac{1}{2}$
L 1 shelf	1 4 $\frac{1}{2}$	$17\frac{1}{2}$	$\frac{1}{2}$
M 1 bottom	1 4 $\frac{1}{2}$	$16\frac{3}{4}$	$\frac{1}{2}$
N 4 plate moulds	1 6 $\frac{3}{4}$	$11\frac{1}{2}$	$\frac{1}{2}$
O 9 bearers	1 3 $\frac{1}{2}$	$\frac{3}{4}$	$\frac{1}{2}$
P 3 divisions	1 1 $\frac{3}{8}$	16	$\frac{3}{16}$

J, K, L, M and P in birch or alder plywood; remainder in good African mahogany or in American oak. Note.—All sizes are net. (404)

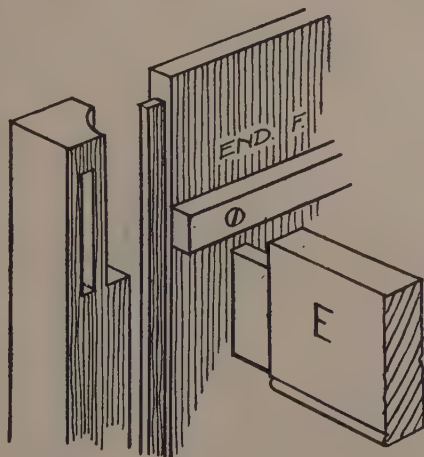


FIG. 6.—JOINT OF END AND LEG.

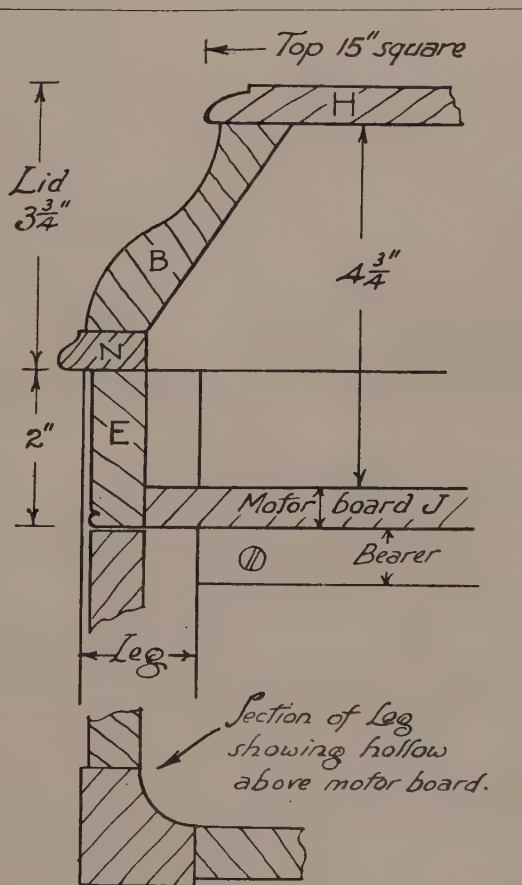


FIG. 7.—SECTION OF LID AND LEG.

FIRESIDE ARM CHAIR

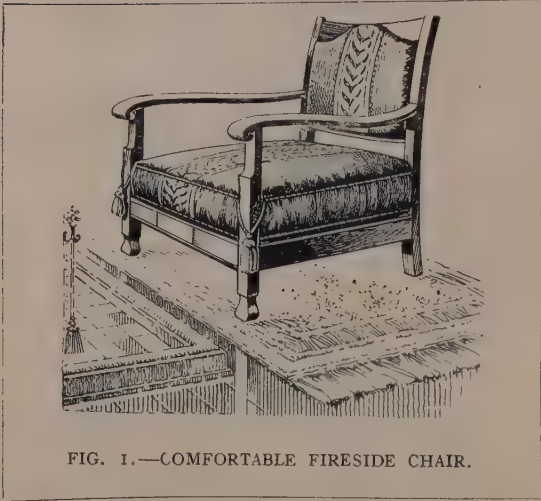


FIG. 1.—COMFORTABLE FIRESIDE CHAIR.

WITH the long winter evenings hard upon us and the glowing hearth fast reclaiming us to its cheery warmth, those who have not yet become possessed of a personal chair which fully satisfies their immediate comfort will find in the present article useful matter for consideration.

Most of us prefer a lounging rather than an erect attitude when sitting, and suitable proportions once obtained render such a chair a permanent favourite. Fig. 1 offers a suggestion for a really comfortable fireside chair in which the sitter can lounge in full content whilst without being on simple straightforward lines to construct. It has a fixed back with upholstered pad shaped to rest the user's head, whilst the seat is provided with a full well-stuffed but loose cushion which should readily win appreciation. The dimensions are: height of back from ground, 32 ins.; height of seat from ground, 14½ ins.; height of arms, 21 ins.; height of seat framing, 8 ins.; width across front, 23 ins.; depth, back to front over legs, 24 ins.; width of back, 18 ins. Any one of the prime woods, oak, mahogany, or walnut, would be suitable for use.

With some sacrifice of appearance and comfort flat arms cut from ¾ in. net thickness may be substituted for the shaped arms shown in sketch.

THE BACK LEGS (A, Fig. 7) are of the dimensions given in cutting list at a point on the level of seat height, about 3 ins. above which a gradual taper may start to finish about 1½ ins. at top in thickness only. Below the seat rail the leg is slightly shaped to an outward kick, so that on a line drawn from top to ground a rake of about 1½ in. is worked.

Material for these back legs should be carefully selected, free from all shakes and imperfections and as long and straight in the grain as is possible. In cutting, the pair of back legs may be marked out on the board so that they fit close up to one another and thus work out more economically in material used.

THE TOP RAIL (B) is allowed on plan a spring

or curve of about 1 in. deep, but this may be increased as desired. The rail could be worked from 2 in. thickness solid stuff, or, with a deeper recessing, the stuff could be thickened up for the purpose. Tenons should be cut each end to enter the back legs at right angles, or the rails may be dowelled into position, the top edge being slightly rounded for finish and a rebate cut for upholstery along the inner edge if required.

THE LOWER BACK RAIL (C) will be tenoned into position as indicated, or again may be dowelled in if this method is preferred, the spring of the rail being kept to a curve to agree with the upper rail (B).

THE BACK SEAT RAIL (D, section) is fitted slightly lower than the front rail, and would enter back legs with a couple of tenons to be pegged. It may be finished straight as in Fig. 2, or be slightly curved as in Figs. 5, 6.

THE SIDE SEAT RAILS (E), enter legs well home, the tenon lying between the joint of rail (D); alternatively, again, this rail could be dowelled with the dowels sufficiently long to enter right through and pin a single tenon upon back and front rails with strong result.

THE FRONT LEGS (F) are shown as cut back to form a tenon at top which will enter arm, in addition to which the leg for a distance of 5½ ins. is shaped back to a thickness of 1½ ins. as in Figs. 4, 7. At ground the legs are also shaped on all sides for a height of about 2¼ ins. to form a toe, which if cleanly done should in simple manner afford an attractive finish.

Instead of the tenon to enter arm, it would be possible to dispense with this and with the arm overlaid in position to bore for a stout dowel which could enter right through and be wedged before cleaning off flush.

THE FRONT RAILS (G) are fitted so that they finish at a height from ground of about 8 ins., the slope towards the back being a mere ½ in. which however conduces noticeably to comfort. This front rail it will be noticed has the top and lower face edge worked with a flat ¼ in. bead between which, in centre, relief is afforded from actual plainness by an applied panel of plywood to be glued and also panel-pinned in position, the edges of the panel at ends being eased to roundness.

THE ARMS (H) are worked to an easy curve which may be obtained from a 2 in. thickness of material with careful use of the plane, the front being shaped as indicated by the addition of an extra glueing to be finally rounded off, the result being a restful angle for the fore-arm to



FIG. 2.—THE FRAMEWORK.

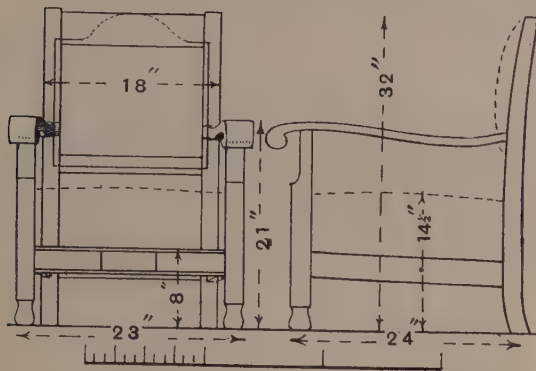


FIG. 3.—FRONT VIEW.

FIG. 4.—END VIEW.

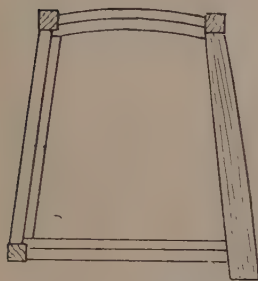


FIG. 5.—PLAN.

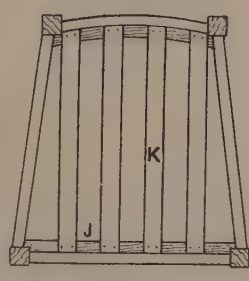


FIG. 6.—LATHS (IF USED).

gether with a good grip for the sitter when about to rise from a sitting position. This portion of the work could be done at the local mill at small cost if preferred. The arm is shown in cutting list as 3 ins. wide, but may be eased slightly less than this, the back end of the arm being tapered to the width of the back leg, with the joint fitted to enter right through for wedging. In place of either tenon or dowel a suitable screw could be entered carefully home and the hole of entry filled, the underside of arm being cut for the top of leg to enter about 1/4 in. deep. If the seat is to be upholstered a rebate for the webbing should be formed by fitting slips in the manner indicated at Fig. 5, which also shows the projection and width of one arm.

With a loose cushion such as that seen in Fig. 1 laths may be fitted as a bottom in the manner indicated at K, Fig. 6, these to bed upon slips fitted to front and back rails as shown at J and be screwed into position.

These laths will be best steamed and slightly bent as a contribution towards comfort. Ordinary chair webbing can be used for cushion support and contributes to comfort but does not look so neat as the laths. The loose cushion is intended to be stuffed up to a thickness of 6 1/2 ins. and will be best made with a stout canvas bag to size to be filled with brown wool, fibre, flock, horsehair with a layer of wadding; or a mixture of these, nicely regulated in filling and stuffed sufficiently hard to obviate undue sinking in the seat when occupied. When stitched up the final

covering may be put on. This, according to Fig. 1, would be piped with variegated cord, and, partly for retaining the cushion in position, and partly for effect, a couple of good tassels with looped cord to agree would be added.

With regard to the upper back pad, this could be made up separately on a millboard or plywood base, stuffed with wool or horsehair overlaid with wadding and covered with canvas to shape so that a lappet is formed to overlay the top rail as shown in Fig. 1. It would press into position in rebated opening and fixed by silk variegated cord tacked round or by gimp and pins equally spaced. The lappet should be cut full to allow for a comfortable stuffing and be finished off either on face of rail or be turned over and finished at back of rail.

If to be a fixed upholstery here, the back opening should be cross webbed and covered with linen—stuffed up and covered with canvas or linen ready for the final covering.

CUTTING LIST:—

	Long.	Wide.	Thick.
	ft. ins.	ins.	ins.
A Two back legs ...	2 9	1 3/4	1 7/8
B One top back rail ...	1 6	3 1/2	7/8
C One lower back rail ...	1 6	1 3/4	7/8
D One back seat rail ...	1 6	2 3/4	1 1/2
E Two side rails ...	2 1	2 3/4	1 1/2
F Two front legs ...	1 10	1 3/4	1 7/8
G One front seat rail ...	1 11	2 3/4	1 1/2
One face panel to fit...	0 5 1/2	3	plywood
H Two arms ...	2 3	3	7/8
Lining slips to seat:			
Two pieces ...	1 10	7/8	7/8
One piece ...	1 4	7/8	7/8
One piece ...	1 10	7/8	7/8
Four laths ...	1 11	1 1/2	3/8

All lengths are full to allow for jointing and paring. Widths generally and all thicknesses are net finished dimensions. (425)

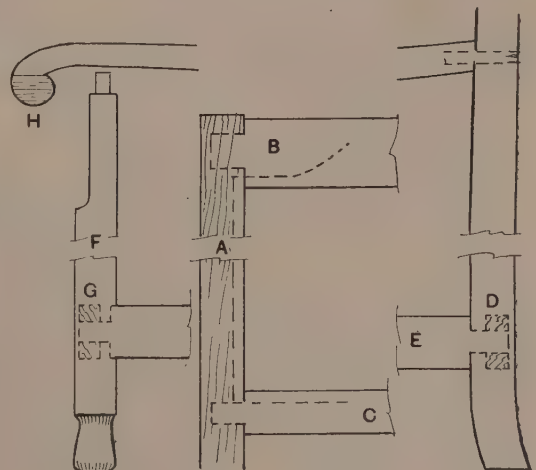


FIG. 7.—DETAIL OF LEGS AND JOINTS.

POLISHING NEW DEAL FLOORS

IN spite of the fact that many purveyors of household hints write about staining deal floors as though it were child's play, it is one of the most unsatisfactory jobs for even a professional polisher or decorator to treat successfully. In the first place, deal is an undesirable wood for floor boards when a varnished or polished finish is required, owing to the alternate stripes of hard and soft grain. Furthermore, the surface of the wood is not dressed up suitably for spirit varnishing.

Treatment of Defects.

We will presume that the floor is to be stained a walnut or mid-brown colour. We should first advise that all the dents that are capable of recovery should be filled out in the following manner. Take a piece of unglazed brown paper about the size of your hand, dip it into warm water, then fold it and place the paper on the dent. Hold a hot poker or soldering-iron on top of the wet paper, and this will generate steam which will in the ordinary course of events swell up the dent. Each bruise may be treated in this manner and any defects left will have to be filled up with plastic wood. The plastic wood will not successfully take a water stain, and it is therefore advisable to colour it to a walnut shade by kneading into it a little coloured spirit stain such as vandyke, or a mixture of vandyke and bismark brown to obtain the approximate shade. Large holes, where, for instance, nails have been punched in, may be filled in with plaster-of-paris, to which is added a little vandyke brown powder. These ingredients should be mixed with water into which has been dropped a little liquid glue.

After attending to the defects it will be necessary to take a few shavings off the unevenly jointed boards with a finely conditioned smoothing plane, and then comes the laborious work of sand-papering or glasspapering. An efficient method of tackling this job is to nail together a wooden box so that it will just contain a brick, covering the bottom of the box with a piece of stair pad felt. A broom handle may be fixed to the box and the worker may then manipulate his improvised scrubber when in a standing position. This same device will later on serve as a polisher.

The Staining Process.

The next step is to stain the floor, and for this purpose a water stain will penetrate well into the fibres. Mix vandyke brown water crystals (or lumps) in warm water. If you desire to give the stain a slight trace of red to make it a reddish brown, you may add a very small quantity of mahogany crystal or powder stain. Stir the stain, allowing it to dissolve over night, and then immediately before using place the container into a pan of water and heat the stain glue-kettle fashion. When the stain is nice and warm, add 1 teaspoonful of vinegar to a pint of the stain and again stir. Now add 1 desertspoonful of hot liquid glue to the pint of stain and apply it whilst still warm to the floor. Use a soft bristle brush,

say, 2 ins. or 3 ins. wide, and work the stain in the direction of the grain of the flooring boards.

The work should be allowed to stand for at least 36 hours after staining, this being the time generally required for a water stain to dry out in a natural manner. It will then be found that the grain of this soft wood has risen considerably and the whole surface will be very rough, and this usually disheartens the amateur. It means that the floor will have to be re-glasspapered, which may be done with No. 1½ grade paper wrapped or tied to the improvised scrubber.

Another very good method, and one which saves time, is to rub down the floor whilst it is still wet with the stain. If this method is adopted it will be necessary to use a waterproof or wet-dry glasspaper on your scrubber. Should there appear to be light patches on the floor after it is thoroughly dry, owing to the presence of sapwood or to glasspapering through the stain, these may be restrained with a weakened coat which may be lightly and dexterously applied with a penny sponge. Bear in mind that all knots will show a darker colour, and if it is desired to minimise this they may be rubbed over with a composite wax candle previous to the staining operation. The application of a thin film of wax will prevent the stain striking deeply into these darker portions.

Filling and Polishing.

When the stain is dry and all has been coloured evenly, it is usual to give the floor a coat of painter's knotting, which may be thinned by adding to it one-third the amount of methylated spirits. This will fasten the stain and the floor may then be filled in with a paste filler made as follows. Put into a paint can some dried crushed whiting and mix this into a thick paste with turpentine. Add sufficient dry brown umber and vandyke brown to colour to the required shade. Then add 1½ ozs. gold size to a pint of the filler, which should be of about the same consistency as thick paint. This mixture may be dabbed on to the floor with a brush, being well rubbed into the grain with the scrubber which may be covered with three thicknesses or more of clean sacking.

The filler having been well rubbed in and the surplus mess rubbed off the surface, the job should be left to dry for two days. On recommencing, dust the floor and apply at intervals two coats of the above mentioned painter's knotting.

The wax polish consists of a digest of English beeswax and pure turpentine, which may be lightly coloured to the required tone by the addition of a few drops of vandyke brown ground in turpentine. Your painter will be sure to stock this mixture. Frequent applications of beeswax must be applied to the floor and well rubbed in at intervals of, say, a week, because the first few applications will have little or no effect upon the work.

With floor polishing, one question always arises. How long will the finish last? There is but one answer. It will last until it is worn off by constant use.

A PORTABLE WORK BENCH

FOR HOME OR OUTDOOR USE

THE accompanying drawings show how a portable bench may easily be made at small expense and will be found very useful for workers such as fitters, plumbers, electricians, etc., and for mechanics in large garages. The bench and tools may easily be put on a handcart and carried from job to job along with other materials. (See also design for handy workshop trestles on page 376).

The bench itself is composed of a 2 in. by 2 in. deal framing, mortised, tenoned and dovetailed together as shown in dimensioned drawing (Fig. 2). Cross rails at the back and front have purposely been omitted to make for lightness, but if the bench top and underneath shelf are well fitted and securely screwed in position to the side rails the bench will be rigid and strong.

THE BENCH TOP is 18 ins. square and about 2 in. thick, preferably of some close grained hardwood such as birch or sycamore. The shelf is also 18 ins. square and may be of 1 in. deal. Both these pieces are cut at the corners to fit round the legs and then securely screwed to the rails provided.

THE RAILS are of 3 in. by 1½ in. material and are bareface-tenoned into the legs, the tenons being about ¾ in. thick and the dovetail joints about 1 in. long. The top rails are placed 2 ft. 4 ins. high, which gives a total height of 2 ft. 6 ins. for the bench top, while the bottom rails may be placed about 6 ins. from the floor.

When the framing for the bench has been prepared, all the sharp arrises should be planed off and the framing subsequently glued up with ¾ in. hardwood pins through the mortises.

DETAILS OF THE TOOL RACK which is fixed to the top rail

of the back frame are shown in Fig. 3. The rack is 18 ins. long by 4 ins. wide and ¾ in. thick, and has a series of ¾ in. diameter holes drilled about half way through with leading slots for files.

TWO DRAWER GUIDES of 2 in. by 2 in. hardwood are required, and these are rebated to receive the 1 in. square drawer runners which are screwed to the sides of the drawer. The guides are then securely screwed to the side rails of the bench and again into the bench top from the underneath side.

Fig. 4 shows the tool drawer, which will be about 17 ins. long from front to back by 10 ins. wide and about 6 ins. deep. This is made from ¾ in. deal, except the front, which is 1 in. thick. The sides are dovetail-jointed into the front and back, and it will be observed that the sides and back are ¾ in. narrower than the front to allow the bottom to be securely screwed to them. This makes a stronger type of drawer for heavy tools than one with grooved sides. (432)

"DINING ROOM FURNITURE DESIGNS."—Revised edition. The designs selected are all modern in character, specially suited for present-day requirements. The items include two complete suites, and there is an excellent range of draw extension tables in different styles. Five sideboards of varied character are dealt with in detail, and other items include single chairs and arm chairs, fireside chair, lounge easy chair, settee, bureau bookcase, trestle dining table, cabinet for china, cutlery and silverware, draught screen and coffee table. Scale drawings, cutting lists and full directions are given. (Price 2/6 net.). Evans Bros. Ltd., Montague House, Russell Square, London, W.C.1.

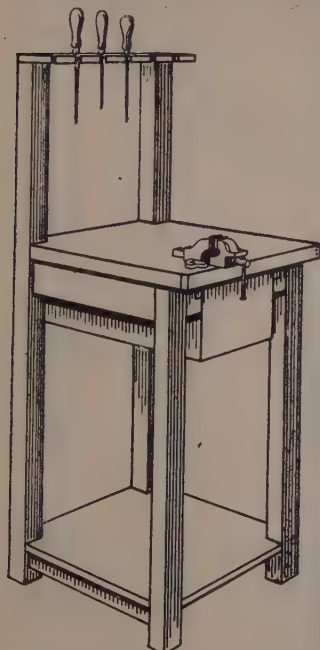


FIG. 1.—PORTABLE WORK BENCH.

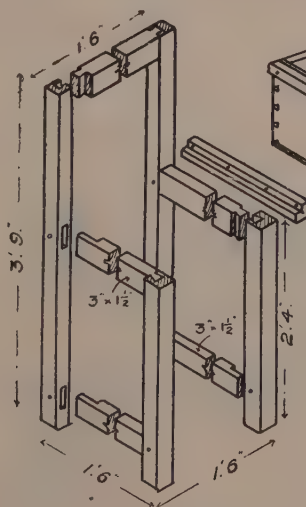


FIG. 2.—CONSTRUCTION.

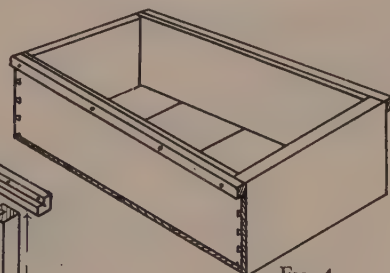


FIG. 4

FIGS. 3 AND 4.—TOOL RACK AND DRAWER.

HALL CUPBOARD AND HAT RACK

THIS well proportioned little fitting for the hall was designed by combining a cupboard with a hat rack with very pleasing results. A cupboard is always useful in the hall for brushes, scarves, gloves and perhaps a light rug, and it may be fitted up with thin shelves to meet individual needs. The rack as sketched at Fig. 1 is 4 ft. long, and is provided with four large and two small hooks, but both the dimension and the number of hooks could be amended if necessary.

Oak is usually chosen for fittings of this kind, and in the present case it should be of $\frac{3}{4}$ in. thickness.

The two sides of the cupboard are $18\frac{1}{2}$ in. long by $6\frac{1}{2}$ in. wide; top, 14 in. long by $7\frac{1}{2}$ in. wide; bottom, $11\frac{1}{2}$ in. long by $6\frac{1}{2}$ in. wide; two door stiles, 16 in. long by $1\frac{1}{2}$ in. wide; two door rails, 11 in. long by $1\frac{1}{2}$ in. wide; back of rack, 4 ft. long by 6 in. wide, all by $\frac{3}{4}$ in. thick; door panel, 13 in. long by 9 in. wide; upper portion of back, $11\frac{1}{2}$ in. long by $5\frac{1}{2}$ in. wide, and lower portion $11\frac{1}{2}$ in. long by $7\frac{1}{2}$ in. wide of plywood. Four triangular blocks for

doors are 2 in. long by 1 in. wide by $\frac{1}{4}$ in. thick, while 5 ft. of $\frac{1}{2}$ in. moulding for edge of door frame is required and 8 ft. of $\frac{3}{8}$ in. half-round turned moulding for edge of rack.

In carrying out the work, the sides are framed into the top and the bottom into the sides.

Dovetail-groove or mortise and tenon joints are used and the dimensions shown at Fig. 2 observed. The front and end edges of the top are chamfered or moulded, and the bottom edges of the sides shaped. The ends of the back of the rack are shaped as at Fig. 3. The back is framed in flush with the back edges of

sides, and rebates are cut in the back, sides and top for the reception of the plywood backs, as at Fig. 4. The door is framed with the stiles and rails, mortised and tenoned together, and rebated for the panel which is fixed with fillets. The frame of the door is shaped on the face by fixing the small triangular blocks to the edges, as at Fig. 5, and the moulding is mitred around. A pair of $1\frac{1}{2}$ in. hinges are used to hang the door, and it is fitted with a catch and handle. (454)

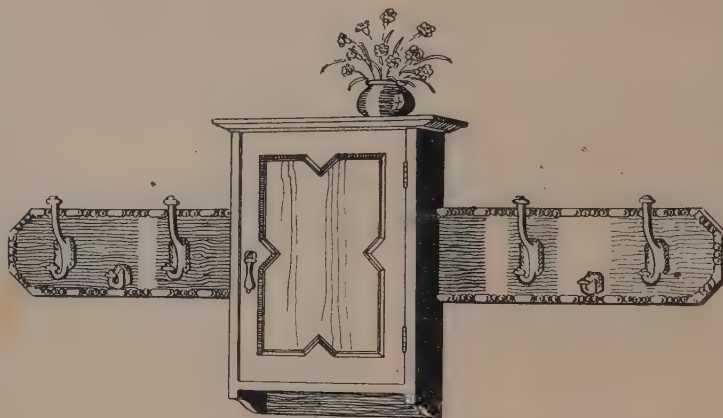


FIG. 1.—HANGING HALL CUPBOARD AND HAT RACK.

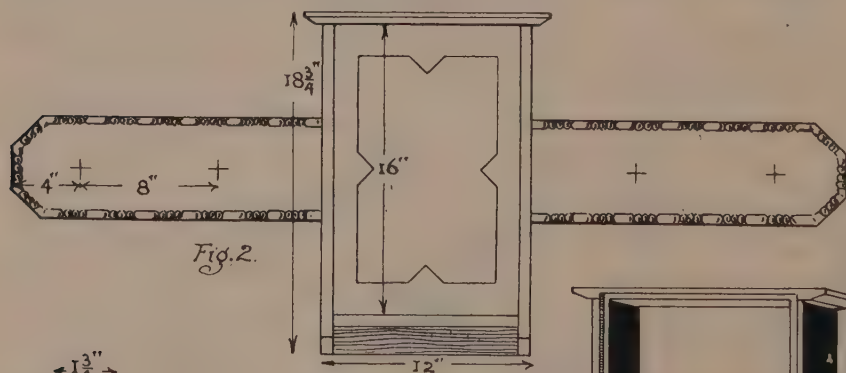


Fig. 2.

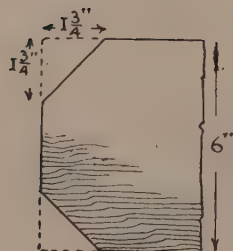


Fig. 3.

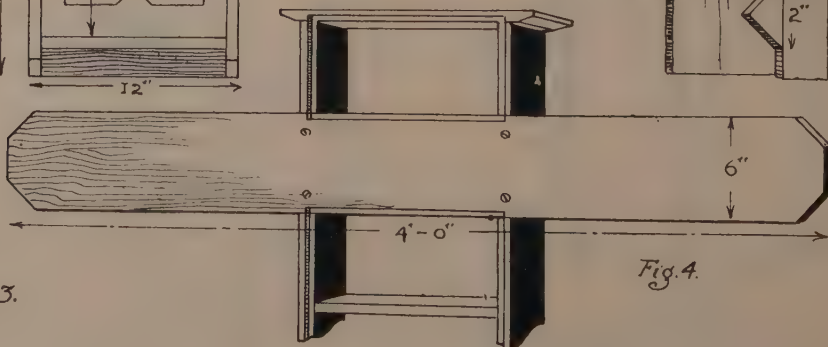


Fig. 4.

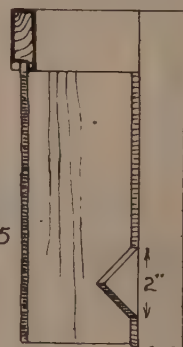


Fig. 5.

FIG. 2.—ELEVATION. FIG. 3.—END OF BACK.

FIG. 4.—FIXING BACK. FIG. 5.—DETAIL OF DOOR.

